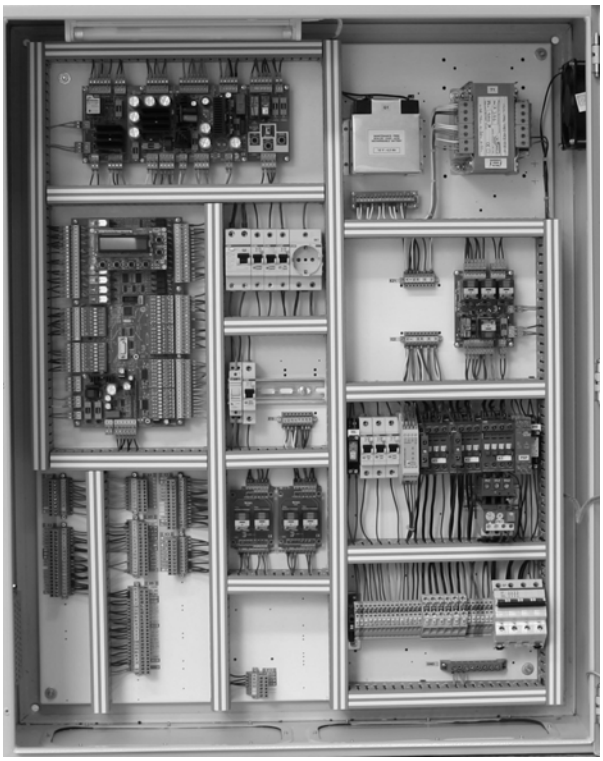
DIOMEDES V2.0

LIFT ELECTRONIC CONTROL CABINET



USER'S MANUAL & INSTALLATION GUIDE

LAMDA ELECTRONICS S.A.

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2 SAFETY PRECAUTIONS

2.1 Information on Safety

Please, read this manual carefully, before you proceed to the installation of the Control Cabinet, the cabling and the regular inspection of the cabinet. Keep this manual in a safe place and available to all installation and engineering personnel during the operation of the lift control cabinet.

The product that is described in this manual can be adjusted so that it can comply with the international norms and EE derivatives. LAMDA ELECTRONICS shall take no responsibility if the installation company does not adjust the product according to the current laws which are effective in the country which the installation process is taking place.

2.2 Personnel's Safety Precautions

Do not touch any of the electric, electrical or electronic part of the system which is under voltage.
Before you start operating the lift control cabinet or a part of it, be sure that there are no people close to you that could be hurt by the lift's move or any part of it. All safety components should be checked for their proper functionality. In any case, the lift should be in the inspection position.

2.3 Product's Safety Precautions

- Do not plug or unplug electronic boards or electronic components under voltage.
- Do not use a megometer when the electronic boards (PCBs) are plugged in. Megometers operate under high voltage and can easily destroy the PCB's semiconductors.
- Do not force the terminal blocks while you install them. They are designed for easy use and installation. If you cannot install them easily, it's probably because either you try to install them up-side-down or they are not aligned.
- Do not install the product near heating sources, vibrating sources or sources of high humidity.
- Check out and be sure about the grounding quality. All groundings should have star type connections. Groundings of bad quality can cause interference in the proper operation of the system.
- Use proper material for packaging the entire product or parts of it.

2.4 Symbols and Safety terms

The symbols below might appear either on the product or in the installation manual.

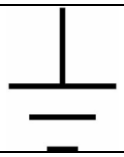
			
DANGER HIGH VOLTAGE	ATTENTION	NOTE	GROUNDING

Table 2-1 Symbol Interpretation

3 PREPARATION

3.1 Reading the Manual

The current User's Manual is for use only by technical personnel, specialized in the Lift market. The thorough knowledge of the Lift Installation is mandatory, as well as the good knowledge of electrical installations. This manual also covers extensively the use of the "PHOENIX" electronic board (controller) as a separate part, as well as the Lift Electronic Control Cabinet "DIOMEDES".

3.2 Hardware usage

3.2.1 Boxes and Cabinets

All metallic boxes and cabinets which are installed (doors included) should be grounded directly to the grounding installation.

If the boxes and the cabinets are painted, the paint should be removed at the connection points as well as at the points where they will be hanged on the wall.

Anodized aluminum is not a good conductor.

3.2.2 Control Cabinet's Grounding Terminal Blocks

LAMDA ELECTRONICS' lift control cabinets have a grounding bar (metallic terminal block with screws) which should be connected with the grounding installation.

3.2.3 Minimum distance between power cabling and signal cabling

The minimum distance between the parallel signal cabling and the power cabling is 30cm. Cabling cross-sections should take place a 90^{o} angle.

3.2.4 Shielding of an AC motor Power Supply

The power supply of an AC motor should be set up with the use of a shielded four-pole cable (three cables for the three phases and one yellow-green cable for the grounding) or with the use of an unshielded cable which is installed in the metallic trunking. It is important that the connection of the AC motor with the control cabinet's grounding should be done with the use of a shielded cable.

3.2.5 The grounding of a shielded power supply cable (AC motor)

The shielding of the power supply cable should be grounded on both sides, so that it can provide full protection. This can be done by using appropriate metallic cables which are grounded (360^{o} grounding) both at the side of the control cabinet and at the side of the AC motor. If this connection is not applicable, the shielded cables should be connected in the control cabinet with the use of an "Omega – Ω" connector. Regarding the side of the AC motor connection, if the full shielding at the terminal blocks is not applicable, the shielding should be grounded before it reaches the terminal blocks. The grounding is achieved by the use of an "Omega-Ω" connector at the metallic supporting brackets of the AC motor. When a metallic trunking is used it should also be shielded 360^{o} wherever this is applicable.

3.2.6 Omit direct grounding of the shielding

The shielding of the grounding should be done with the use of an "Omega-Ω" connector (360^{o} grounding) and **never** directly.

3.2.7 Power supply cable for a DC motor

The power supply cable of a DC motor is not necessary to be shielded.

3.2.8 Direct grounding of the motor's metallic cover

The motor's metallic cover should be grounded through the control cabinet's grounding.

3.2.9 Maximum permissible length of the motor's cabling inside the control cabinet

The maximum permissible length from the control cabinet's terminal where the grounding is plugged in, is 30cm.

3.2.10 Encoder's Cabling

Encoder's cabling should be shielded and 360^{o} grounded on the control cabinet. The cable terminal, which is connected to the inverter is already shielded and grounded, therefore it needs no further protection. In order to check out that the shielding is not connected on the motor's side, the encoder's connection is deducted from the inverter and it is confirmed, by measuring, the presence of high impedance between the shielding and the encoder's or motor's metallic housing.

3.3 Control Cabinet's Maintenance and Repair

3.3.1 Care

The control cabinets should be installed following the installation guides and regulations. They don't need any particular maintenance. It is forbidden to wipe them with a wet cloth. The power supply should always be switched off before you proceed to the maintenance, repair or cleaning procedure.

3.3.2 Service

All junction screws on the control cabinet should be re-screwed two weeks after the initial delivery. The same procedure should be repeated every year.

If any control cabinet is stored for more than two years, the capacitors might have been discharged. It is recommended that the capacitors of these devices should be recharged for two hours, while the control cabinet is under power supply and in a standby mode. After the above actions, the control cabinet is ready to be installed without any problem.

3.3.3 Repairs

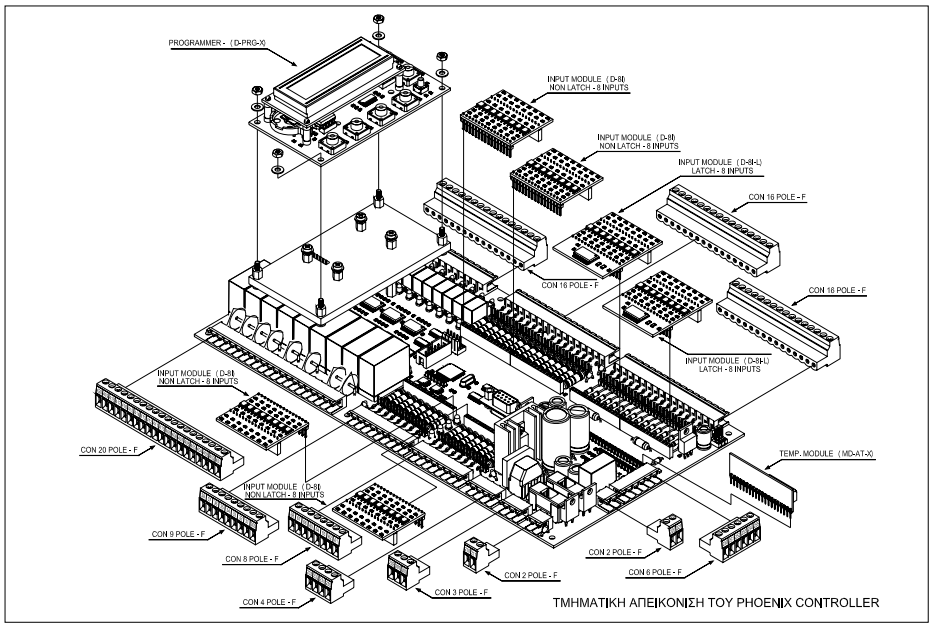
All electronic boards should be repaired by specialized personnel that are certified by the manufacturer. You should never repair anything by yourself.

When you order spare parts, indicate not only the electronic board's type, but also the serial number of your control cabinet.

4 LIFT ELECTRONIC CONTROLLER - Phoenix

4.1 Technical Characteristics

The electronic controller's dimensions are: 29,5X15,7cm. The electronic controller has holes on the board in order to be mounted. Use 8 metallic separators M3 in order to mount the electronic controller.


PROGRAMMER - (D-PRG-X)
INPUT MODULE (D-8I) NON LATCH - 8 INPUTS
INPUT MODULE (D-8I) NON LATCH - 8 INPUTS
INPUT MODULE (D-8I-L) LATCH - 8 INPUTS
CON 16 POLE - F
CON 16 POLE - F
CON 16 POLE - F
INPUT MODULE (D-8I-L) LATCH - 8 INPUTS
INPUT MODULE (D-8I) NON LATCH - 8 INPUTS
CON 20 POLE - F
TEMP. MODULE (MD-AT-X)
INPUT MODULE (D-8I) NON LATCH - 8 INPUTS
CON 9 POLE - F
CON 8 POLE - F
CON 2 POLE - F
CON 6 POLE - F
CON 2 POLE - F
CON 3 POLE - F
CON 4 POLE - F
ΤΜΗΜΑΤΙΚΗ ΑΠΕΙΚΟΝΙΣΗ ΤΟΥ PHOENIX CONTROLLER

	Power Inputs	Terminal Blocks	Voltage	Current	Temperature	Comments
	CPU (electronic circuit)	200 και 202	12VAC typical (10 VAC min-14VAC max) (14VDCmin – 20VDCmax)	2 A (max)	-	The bridge output (non-stabilized 12VDC) powers the output relay coils (Power and Signal)
Inputs	Panel Signals	61-68 31-38 69-54 55-97	48VDC (35-51VDC)	Typical 8mA, (6mA min-15mA max) per input	-	Common at 48VDC
	Calls	81-96	24VDC (20 – 28VDC)	Typical 8mA, (6mA min-15mA max) per input	-	Common at 24VDC
Outputs	RLY-1 ~ 9	401-420	230V AC/DC (220-250VAC/DC)	5A max	-	Power Relays (non-inductive load)
	RLY-10-23	130-100	125VAC 24VDC 60VDC max	0,5A 1,0A 0,5A max	-	Signal Relays (non-inductive load)
PTC Thernistors	Motor	252-253	PTC	-	75°C	Problem when there is large resistance or absence of PTC
	Oil	254-255	PTC	-	75°C	Problem when there is large resistance or absence of PTC

Table 4-1 Technical Characteristics

The power supply connections are shown in Figure 4-1 that follows.

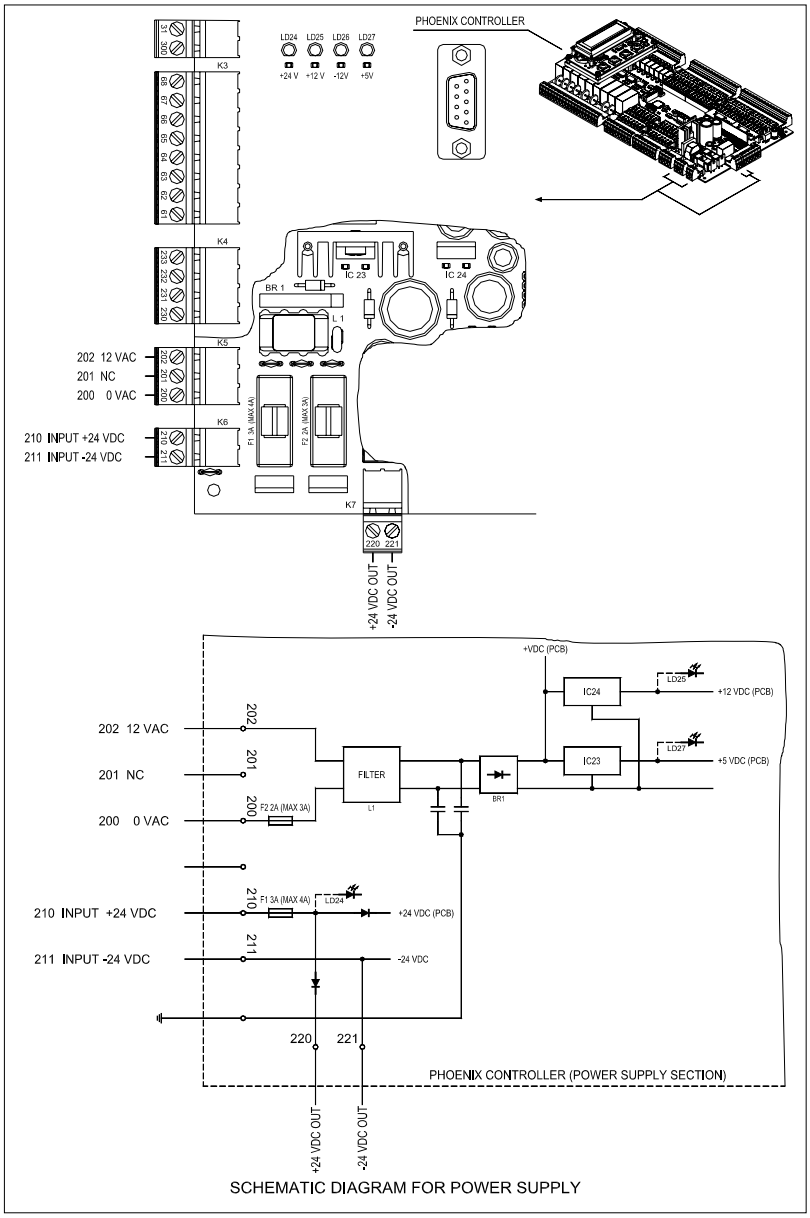


Figure 4-1 Power supply connections

4.2 Inputs

The inputs of the controller depending on the type of incoming signals are designated into two groups:

- Call inputs and
- Inputs of control cabinet peripherals

Call inputs are activated via the grounding of the 24VDC and are grouped per octad (groups of eight) in detachable modules.

This modular design offers the advantage of immediate resolve of any problem by replacing them (see figure 4-2).

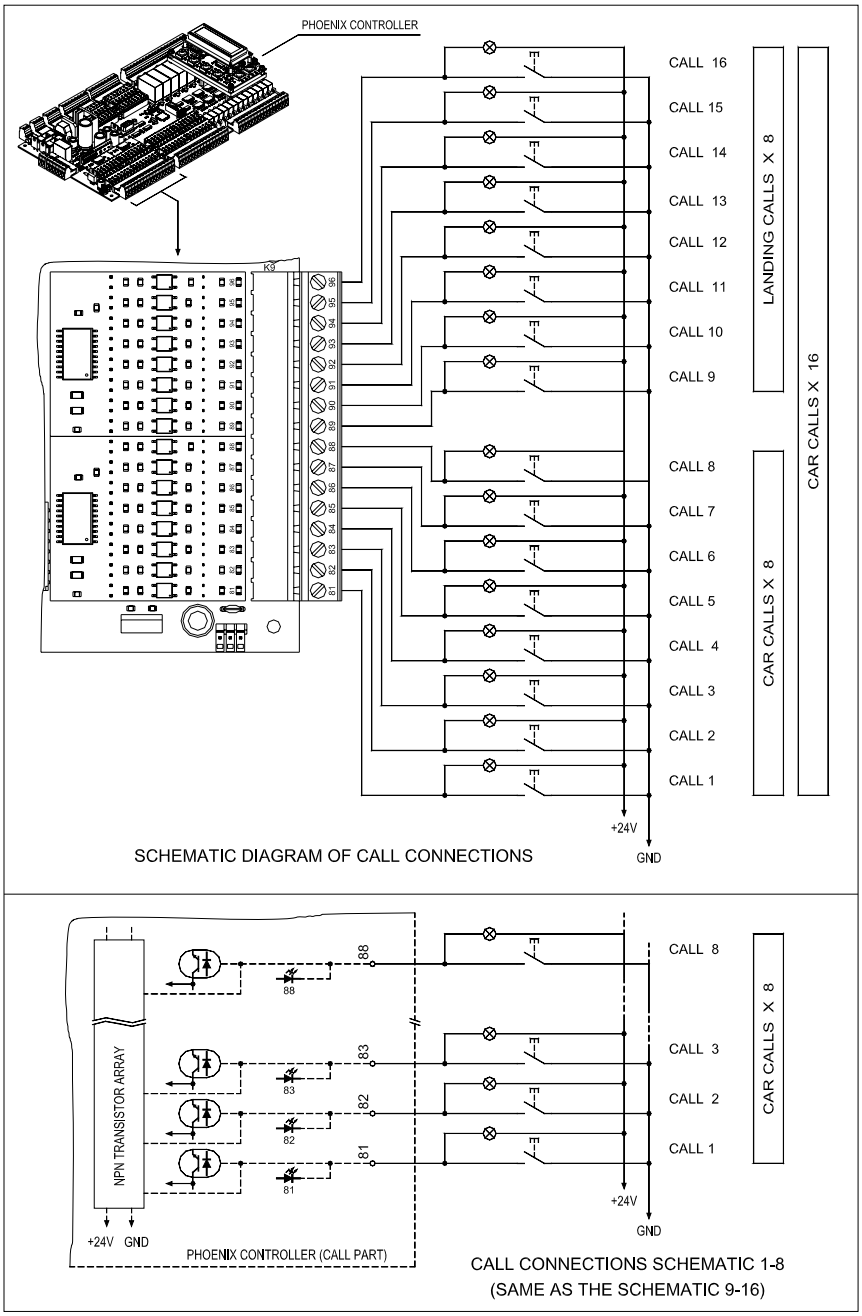


Figure 4-2 Call Inputs

The table below shows the call inputs and their functionality in regard to the calling system that the electronic controller is programmed to operate

CALL	APB	DCS	UCS	FCS
Input K01	CAR-LND 01	CAR 01	CAR 01	CAR 01
Input K02	CAR-LND 02	CAR 02	CAR 02	CAR 02
Input K03	CAR-LND 03	CAR 03	CAR 03	CAR 03
Input K04	CAR-LND 04	CAR 04	CAR 04	CAR 04
Input K05	CAR-LND 05	CAR 05	CAR 05	CAR 05
Input K06	CAR-LND 06	CAR 06	CAR 06	CAR 06
Input K07	CAR-LND 07	CAR 07	CAR 07	LND 02 DOWN
Input K08	CAR-LND 08	CAR 08	CAR 08	LND 03 DOWN
Input K09	CAR-LND 09	LND 01 UP	LND 01 UP	LND 04 DOWN
Input K10	CAR-LND 10	LND 02 DOWN	LND 02 UP	LND 05 DOWN
Input K11	CAR-LND 11	LND 03 DOWN	LND 03 UP	LND 06 DOWN
Input K12	CAR-LND 12	LND 04 DOWN	LND 04 UP	LND 01 UP
Input K13	CAR-LND 13	LND 05 DOWN	LND 05 UP	LND 02 UP
Input K14	CAR-LND 14	LND 06 DOWN	LND 06 UP	LND 03 UP
Input K15	CAR-LND 15	LND 07 DOWN	LND 07 UP	LND 04 UP
Input K16	CAR-LND 16	LND 08 DOWN	LND 08 DOWN(UP)	LND 05 UP

Table 4-2 Table of Calls

The rest of the inputs are activated with voltage of 48VDC and are grounded also per octade (groups of eight) in detachable modules (see Figure 4-3, 4-4 and 4-5).

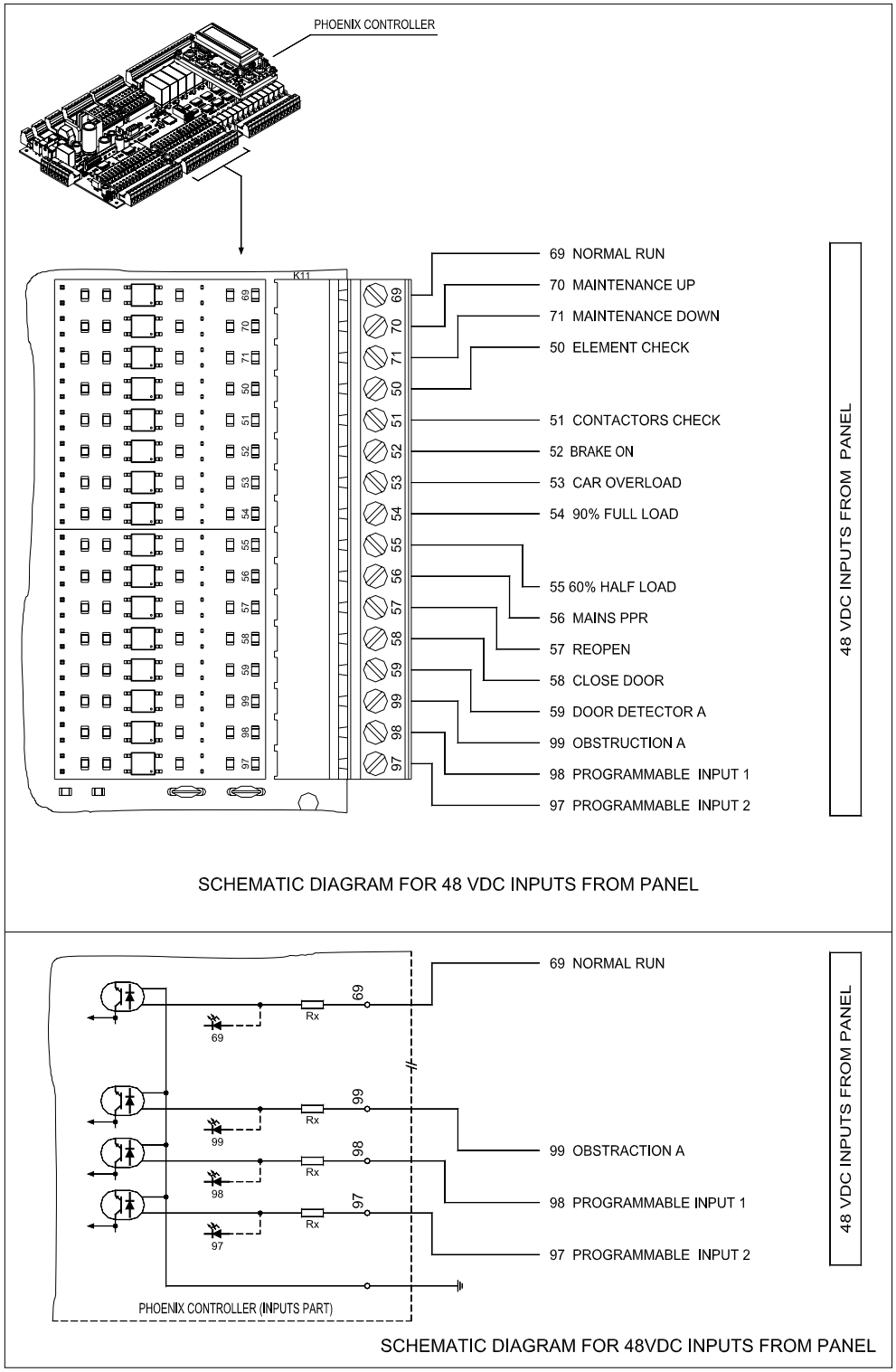


Figure 4-3 Inputs of the right side of the Controller

The modular designing offers the advantage of the fast problem solving by easily substituting the faulty modules on site.

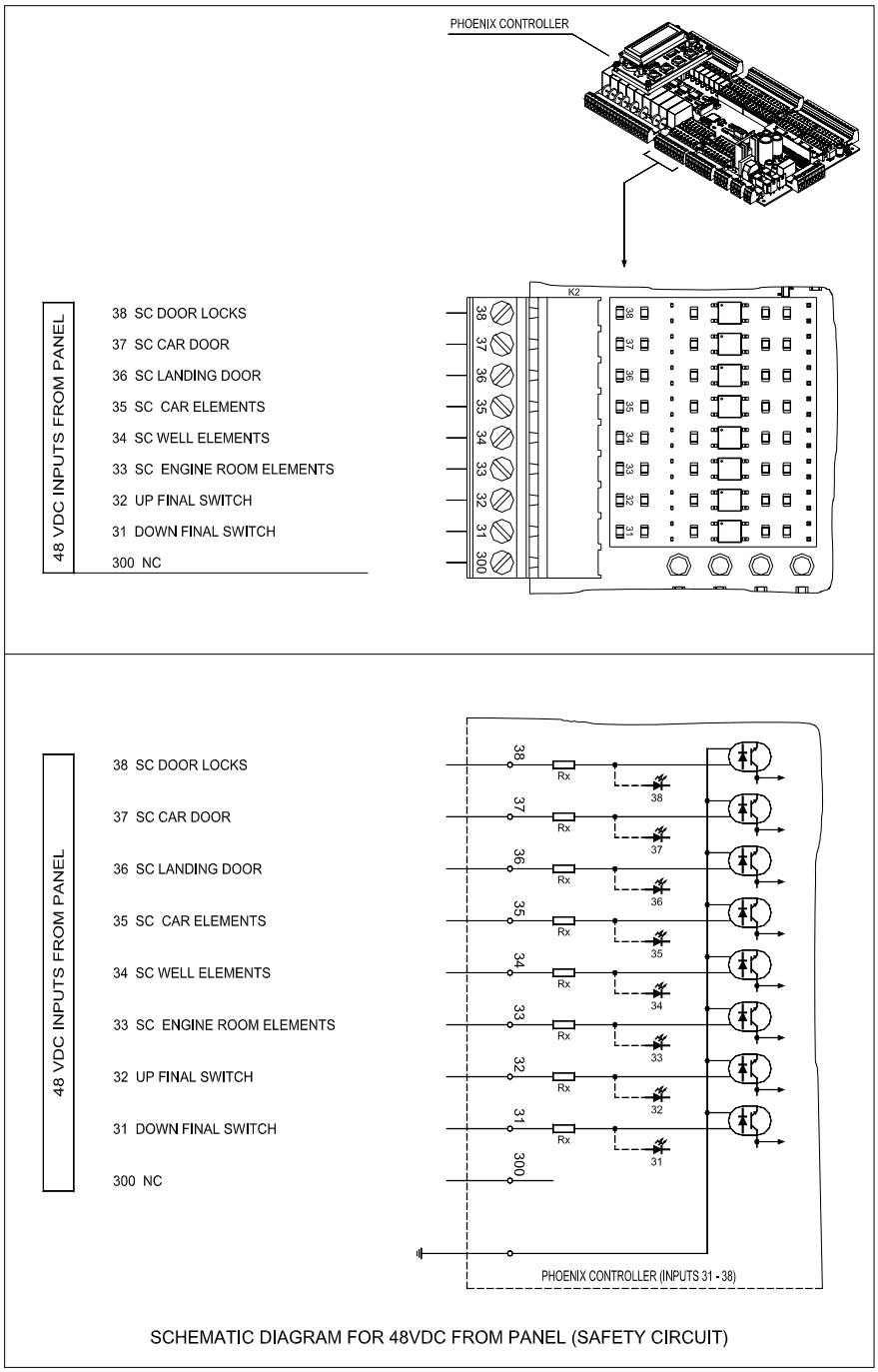


Figure 4-4 Inputs of the left side of the Controller (A)

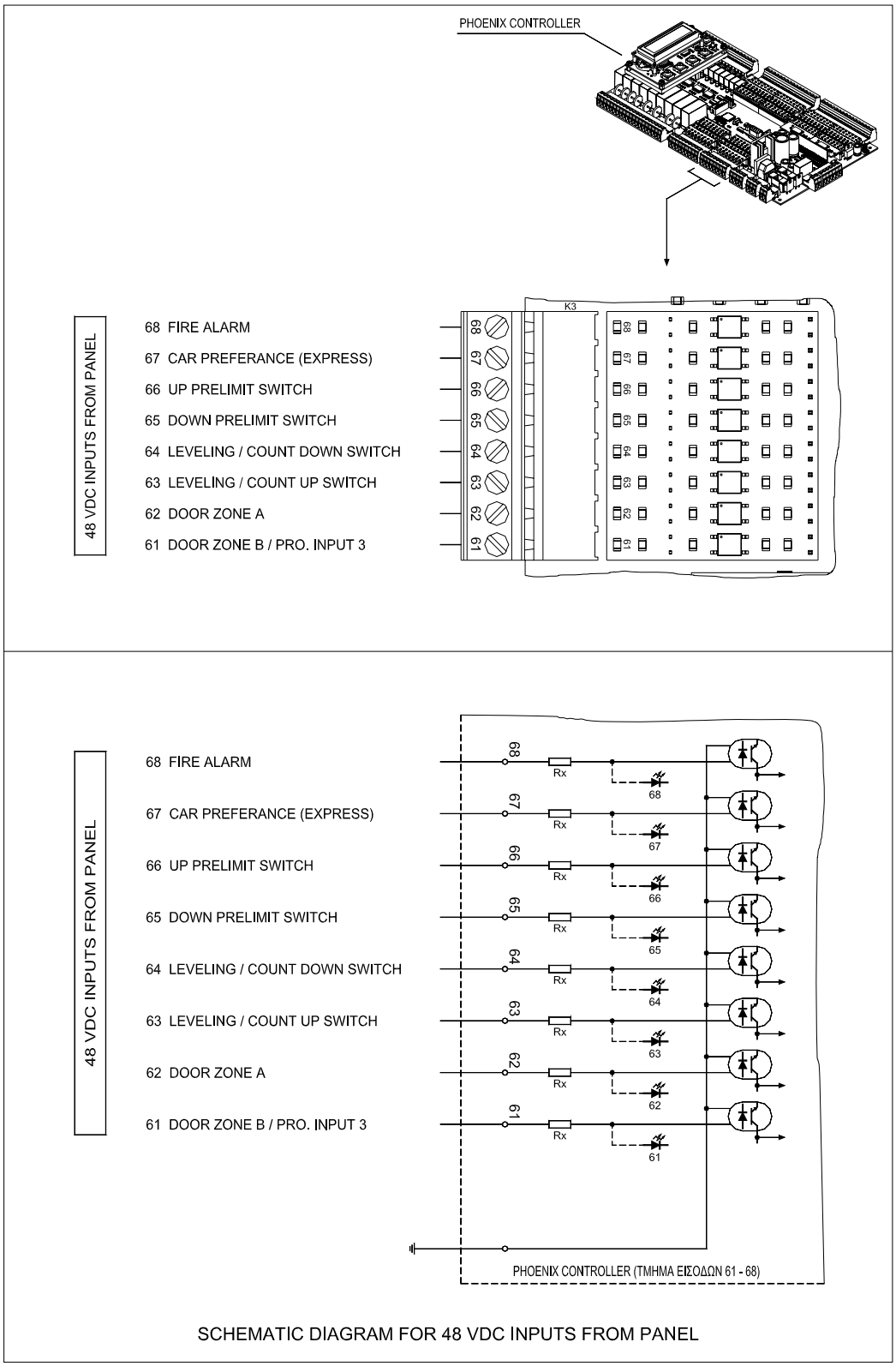

PHOENIX CONTROLLER
48 VDC INPUTS FROM PANEL
68 FIRE ALARM
67 CAR PREFERANCE (EXPRESS)
66 UP PRELIMIT SWITCH
65 DOWN PRELIMIT SWITCH
64 LEVELING / COUNT DOWN SWITCH
63 LEVELING / COUNT UP SWITCH
62 DOOR ZONE A
61 DOOR ZONE B / PRO. INPUT 3
K3
Rx
PHOENIX CONTROLLER (ΤΜΗΜΑ ΕΙΣΟΔΩΝ 61 - 68)
SCHEMATIC DIAGRAM FOR 48 VDC INPUTS FROM PANEL

Figure 4-5 Inputs of the left side of the Controller (B)

4.3 Outputs

The outputs of the controller are of two types:

- Signal Outputs
- Power Outputs

Signal outputs are dry contact relays which drive indicators and devices outside the control panel. Generally there is the ability to drive low current devices (See Fig. 4-6).

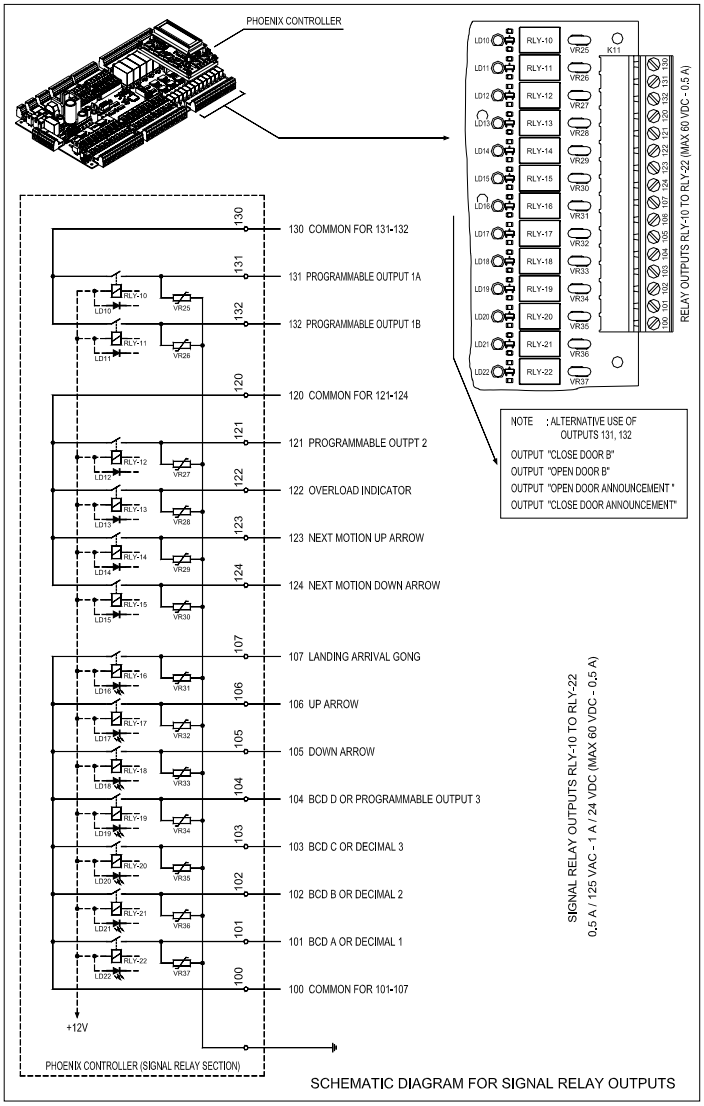

PHOENIX CONTROLLER
RELAY OUTPUTS RLY-10 TO RLY-22 (MAX 60 VDC - 0,5 A)
NOTE : ALTERNATIVE USE OF OUTPUTS 131, 132
OUTPUT "CLOSE DOOR B"
OUTPUT "OPEN DOOR B"
OUTPUT "OPEN DOOR ANNOUNCEMENT "
OUTPUT "CLOSE DOOR ANNOUNCEMENT"
130 COMMON FOR 131-132
131 PROGRAMMABLE OUTPUT 1A
132 PROGRAMMABLE OUTPUT 1B
120 COMMON FOR 121-124
121 PROGRAMMABLE OUTPT 2
122 OVERLOAD INDICATOR
123 NEXT MOTION UP ARROW
124 NEXT MOTION DOWN ARROW
107 LANDING ARRIVAL GONG
106 UP ARROW
105 DOWN ARROW
104 BCD D OR PROGRAMMABLE OUTPUT 3
103 BCD C OR DECIMAL 3
102 BCD B OR DECIMAL 2
101 BCD A OR DECIMAL 1
100 COMMON FOR 101-107
SIGNAL RELAY OUTPUTS RLY-10 TO RLY-22
0,5 A / 125 VAC - 1 A / 24 VDC (MAX 60 VDC - 0,5 A)
+12V
PHOENIX CONTROLLER (SIGNAL RELAY SECTION)
SCHEMATIC DIAGRAM FOR SIGNAL RELAY OUTPUTS

Figure 4-6 Signal Relay Outputs

Power outputs are dry contacts which drive the whole of the motion circuit of the elevator. In Fig. 4-7, 4-8 and 4-9 the internal connections of the Power Relays for the Inverter (V.V.V.F.) and the Hydraulic type elevators are given respectively.

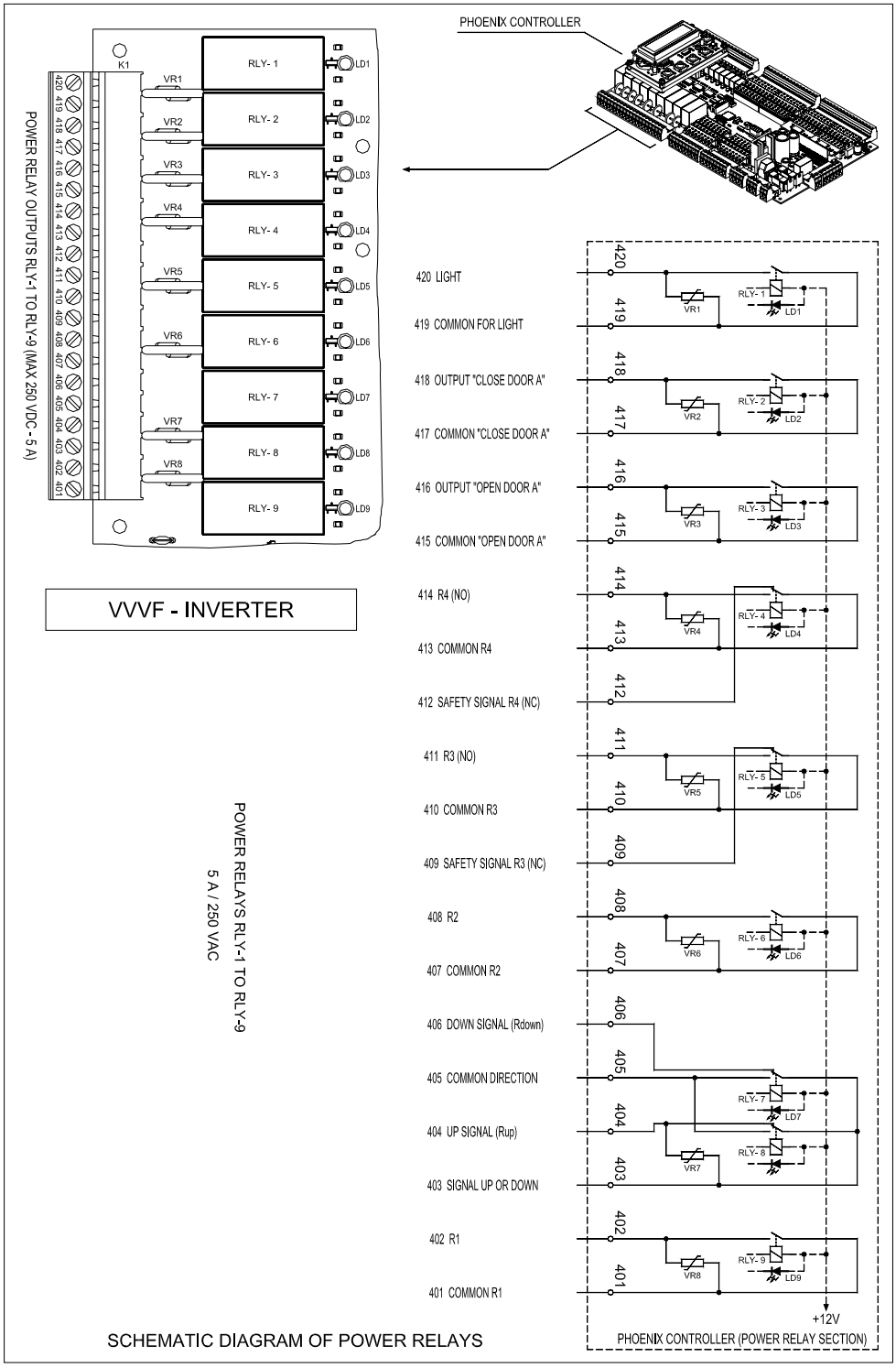


Figure 4-7 Internal Connections of Inverter (V.V.V.F.) type elevator Power Relays

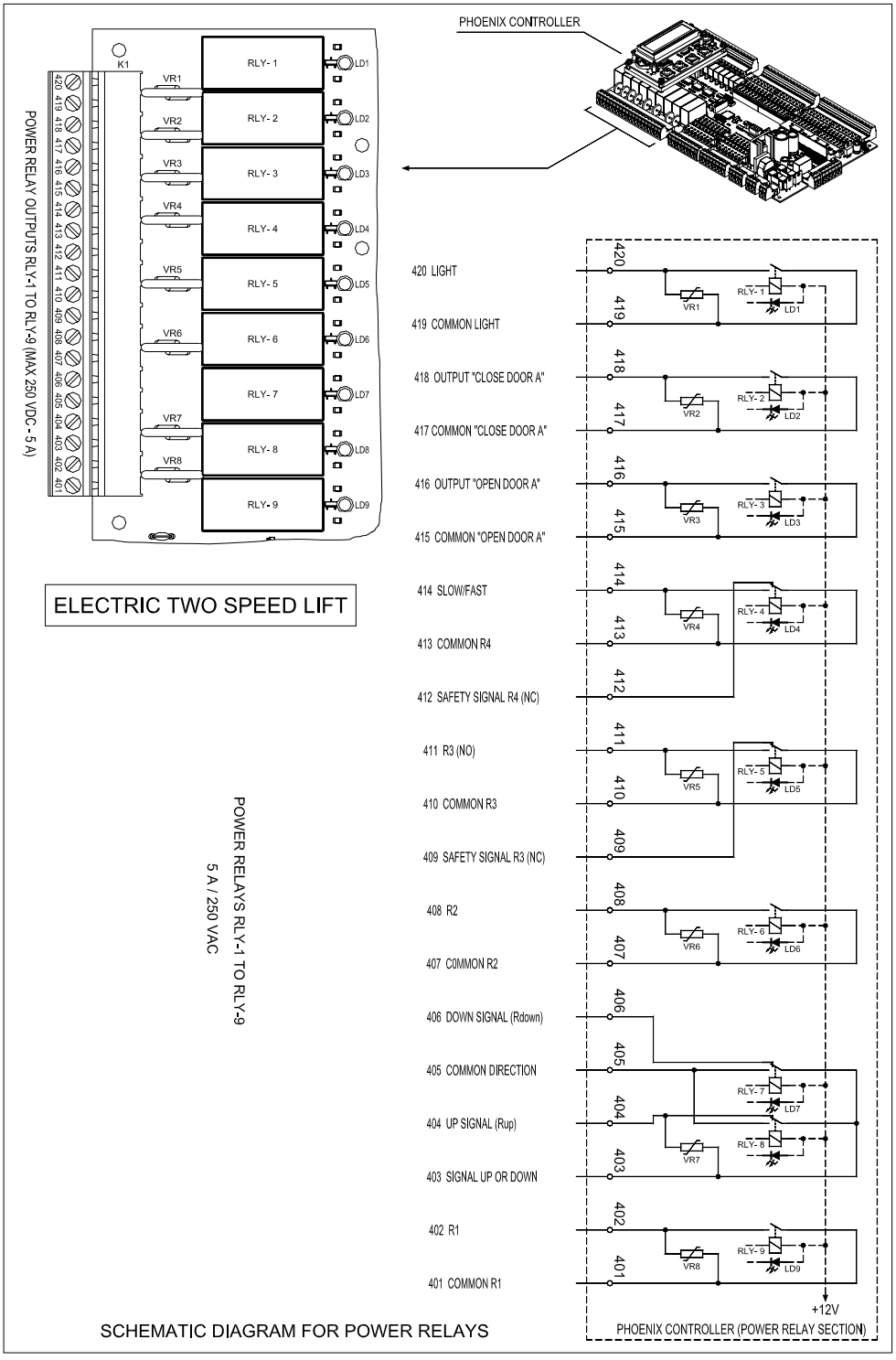


Figure 4-8 Internal Connections of Two-Speed type elevator Power Relays

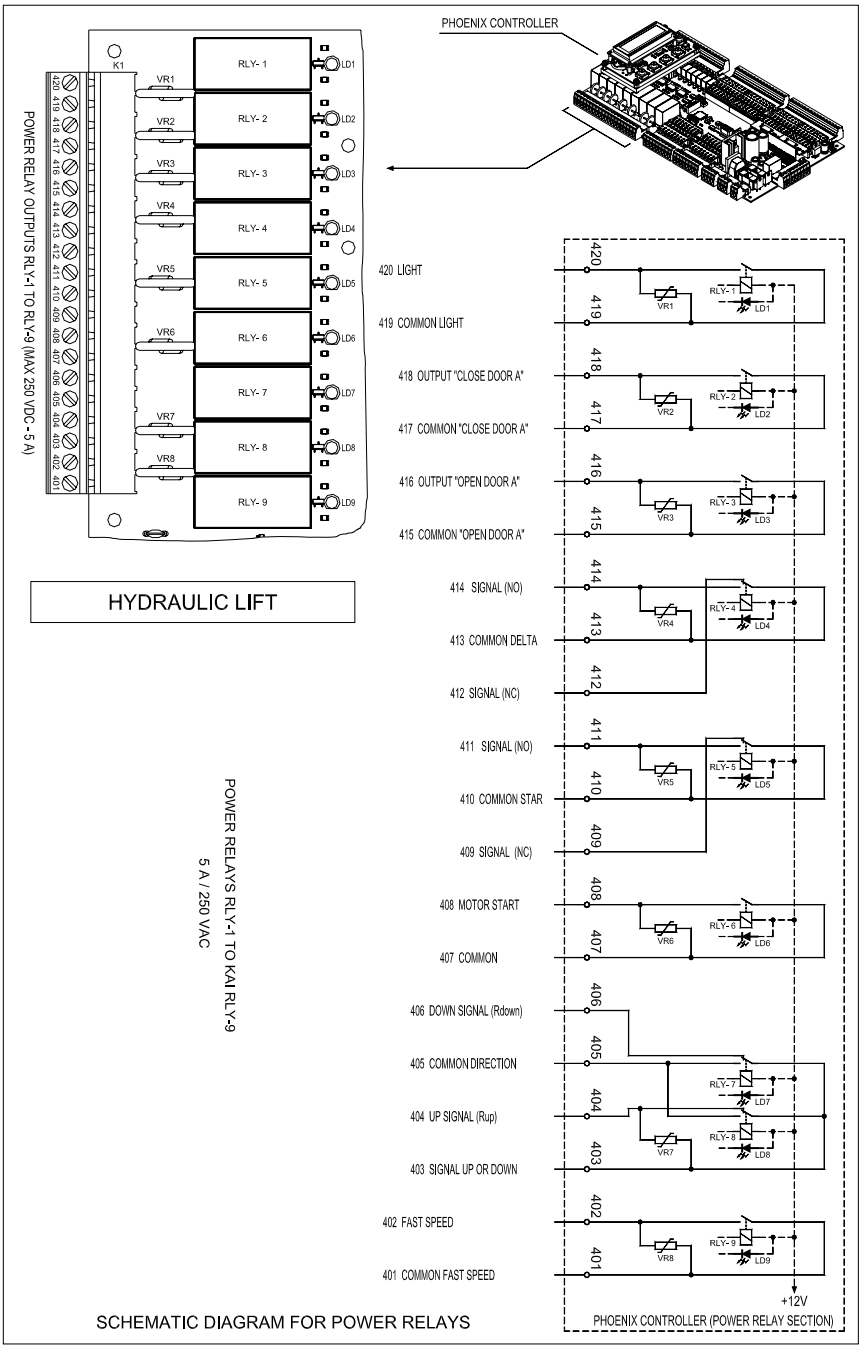


Figure 4-9 Internal Connections of Hydraulic type elevator Relays

4.4 Communications

The Controller can communicate with external devices through serial ports RS-485 and RS-232 (Figure 4-10). The RS-485 serial port provides the ability to connect the controller with external devices up to 1800m distance. Examples of such devices are the Voice Announcer, the Car module, etc.

Furthermore, computers can be connected to the controller through RS-232 serial port (Figure 4-10).

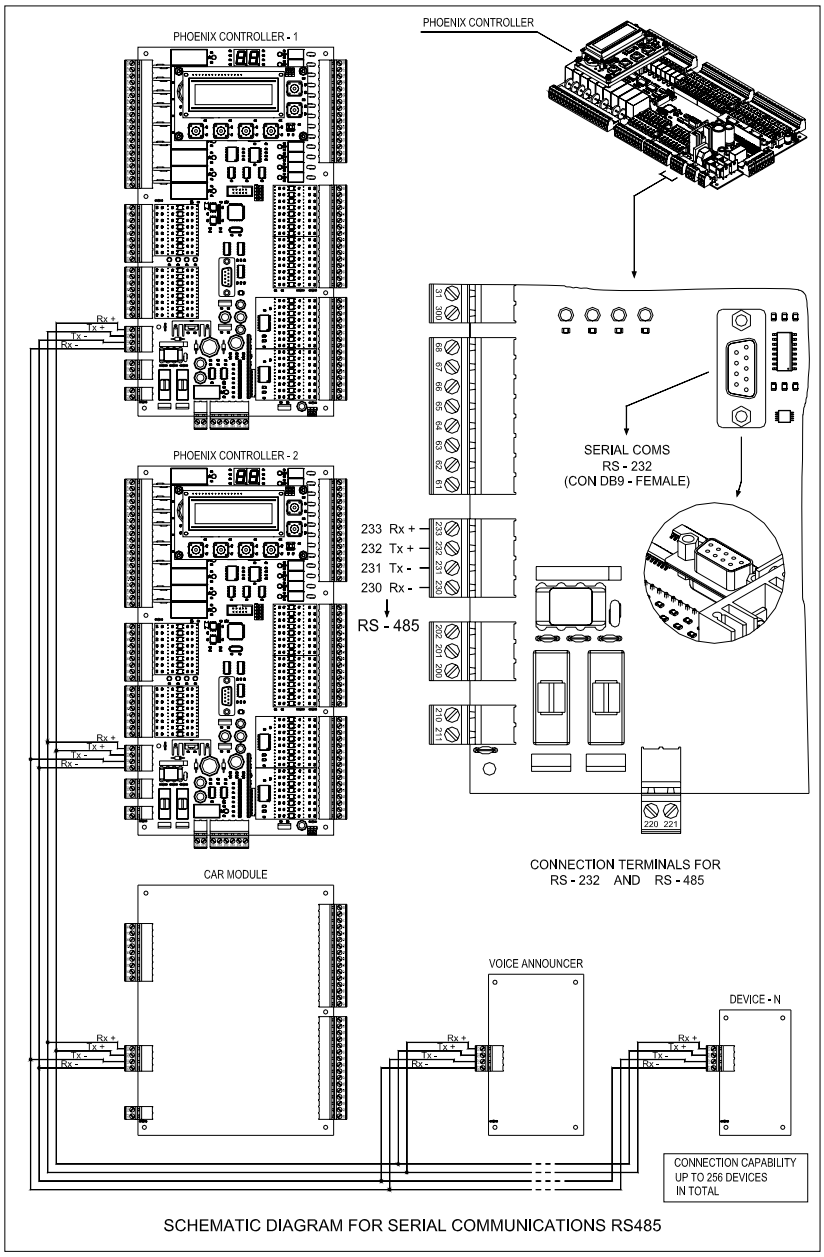


Figure 4-10 Connections of serial ports RS-485 / RS-232

4.5 Thermo elements

The elevator's manufacturer places a thermistor (P.T.C.) in the oil (if it is for a hydraulic lift) and in the motor. When an overheating problem arises, the thermistor's resistance increases a lot (P.T.C.) and the Element Check continuity is interrupted. Its connection diagram is presented in Figure 4-11.

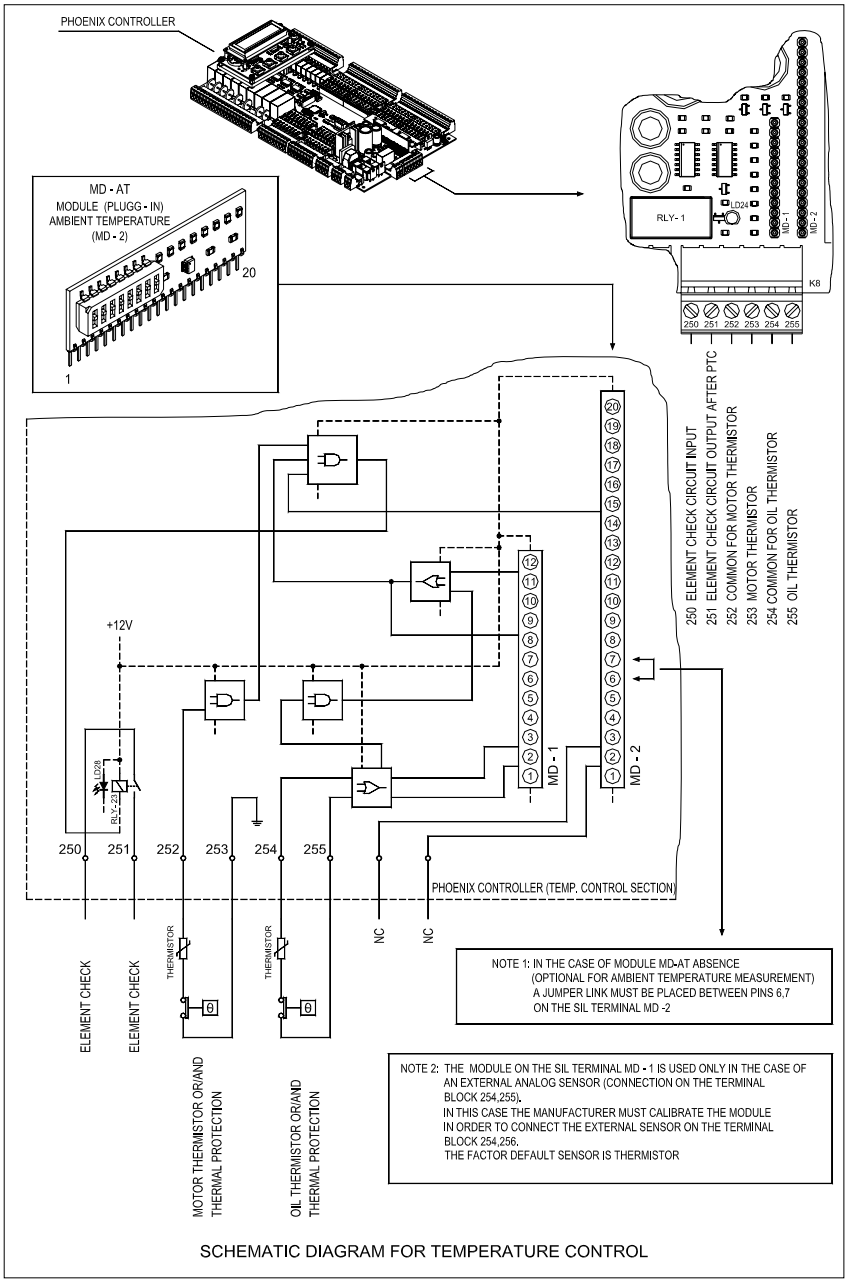

PHOENIX CONTROLLER
MD - AT
MODULE (PLUGG - IN)
AMBIENT TEMPERATURE
(MD - 2)
20
1
RLY - 1
LD24
MD-1
MD-2
K8
250 251 252 253 254 255
250 ELEMENT CHECK CIRCUIT INPUT
251 ELEMENT CHECK CIRCUIT OUTPUT AFTER PTC
252 COMMON FOR MOTOR THERMISTOR
253 MOTOR THERMISTOR
254 COMMON FOR OIL THERMISTOR
255 OIL THERMISTOR
+12V
LD28
RLY-28
MD - 1
MD - 2
250 251 252 253 254 255
PHOENIX CONTROLLER (TEMP. CONTROL SECTION)
NC
NC
THERMISTOR
THERMISTOR
ELEMENT CHECK
ELEMENT CHECK
MOTOR THERMISTOR OR/AND THERMAL PROTECTION
OIL THERMISTOR OR/AND THERMAL PROTECTION
NOTE 1: IN THE CASE OF MODULE MD-AT ABSENCE
(OPTIONAL FOR AMBIENT TEMPERATURE MEASUREMENT)
A JUMPER LINK MUST BE PLACED BETWEEN PINS 6,7
ON THE SIL TERMINAL MD -2
NOTE 2: THE MODULE ON THE SIL TERMINAL MD - 1 IS USED ONLY IN THE CASE OF
AN EXTERNAL ANALOG SENSOR (CONNECTION ON THE TERMINAL
BLOCK 254,255).
IN THIS CASE THE MANUFACTURER MUST CALIBRATE THE MODULE
IN ORDER TO CONNECT THE EXTERNAL SENSOR ON THE TERMINAL
BLOCK 254,256.
THE FACTOR DEFAULT SENSOR IS THERMISTOR
SCHEMATIC DIAGRAM FOR TEMPERATURE CONTROL

Figure 4-11 PTC Thermistor Inputs – Internal Connections

4.6 Programmer – LCD Screen

The controller comes with a programmer and an LCD screen used for the change and/or the correction of the parameters as well as for the presentation of the operational state and the error history.

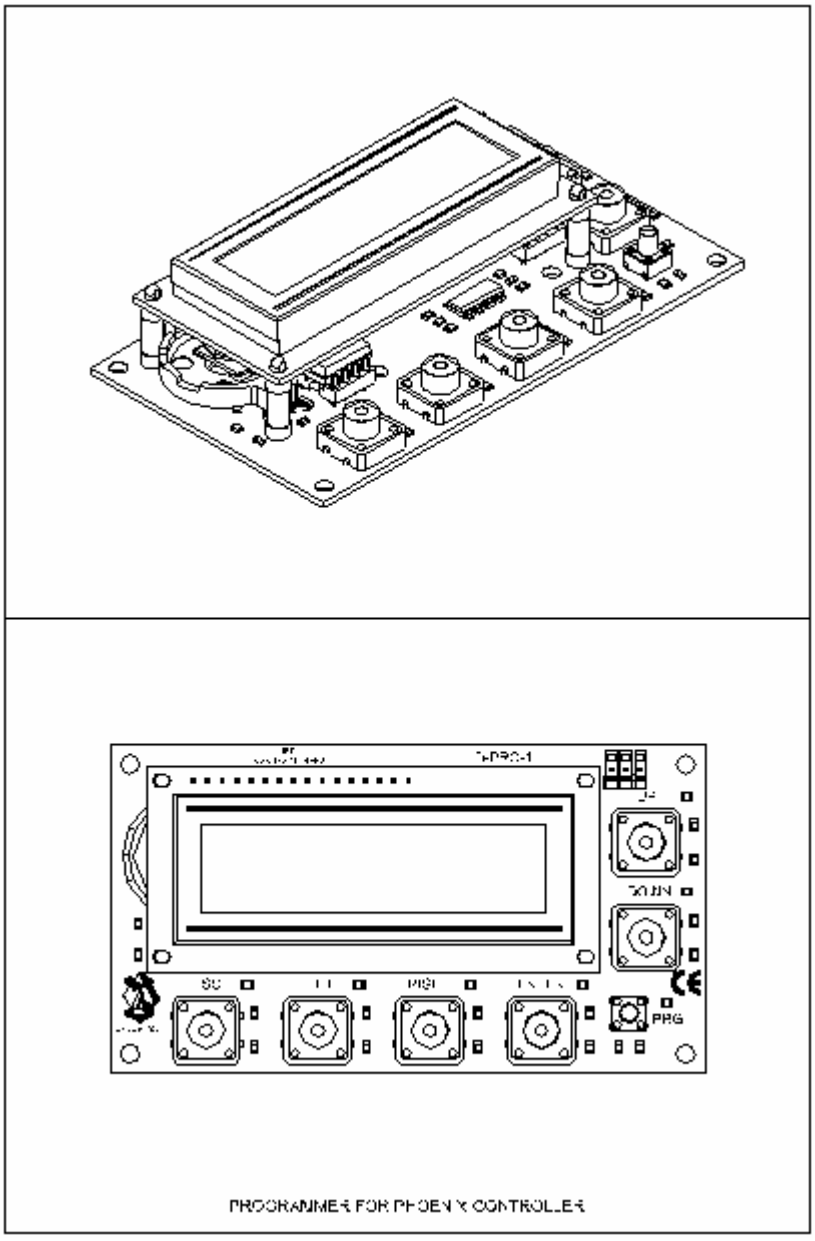
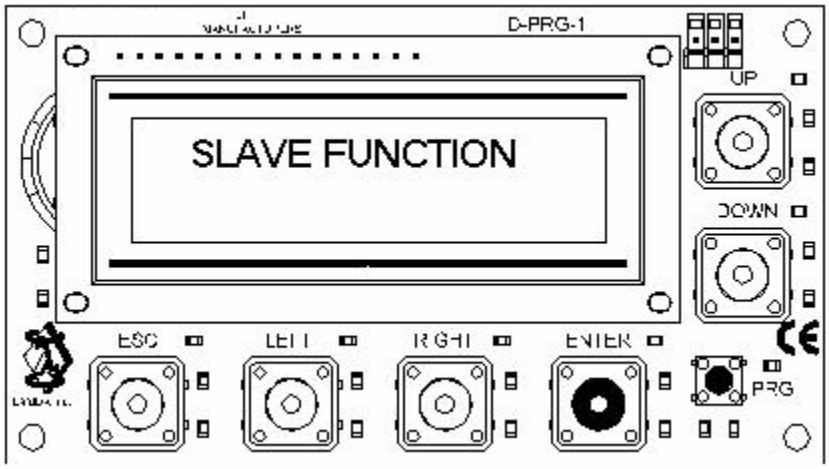


Figure 4-12 Programmer – LCD Screen

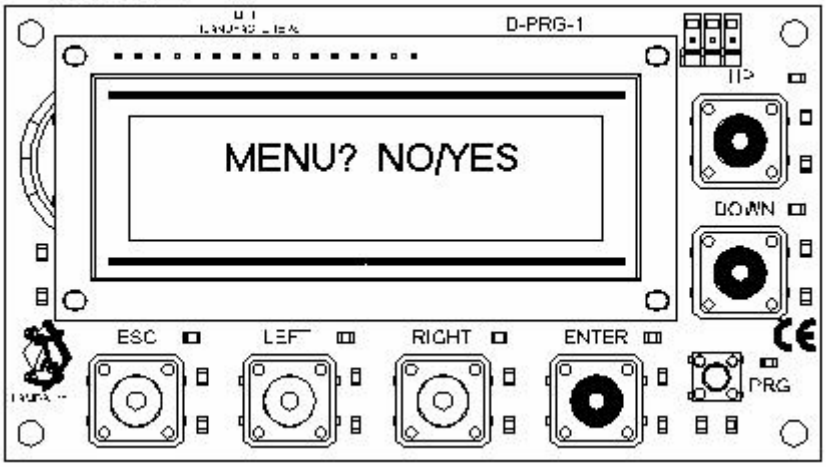
As you start the operation of the board, the screen which will be programmed should display this message: "SLAVE FUNCTION"

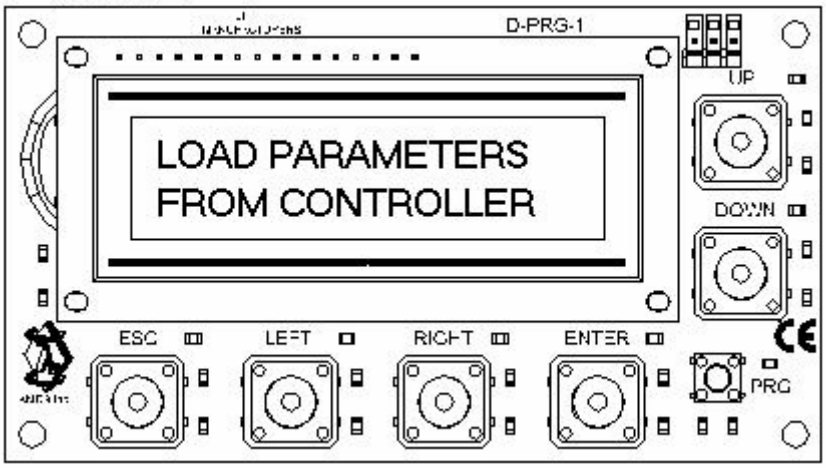


In normal operation the screen presents the current operation state of the elevator. In order to activate the Revision Process from the programmer we must push buttons **PRG** and **ENTER** at the same time and we get the following screen message:

At first, the word «NO» flashes on the screen as a pre-selected option. If we press ENTER then, we will go back to the initial state of the programmer's operation. Using the UP and DOWN buttons we may choose the YES or NO (the flashing option is the selectable one).

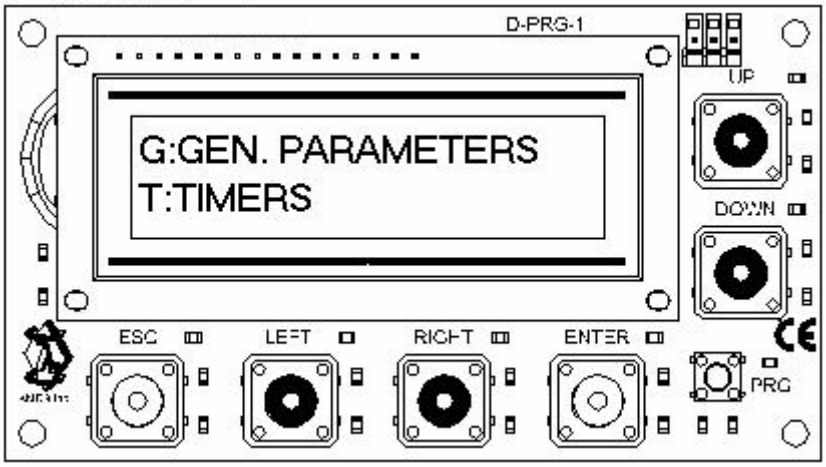
By choosing YES (and then ENTER), we get the following message «LOAD PARAMETERS FROM CONTROLLER».



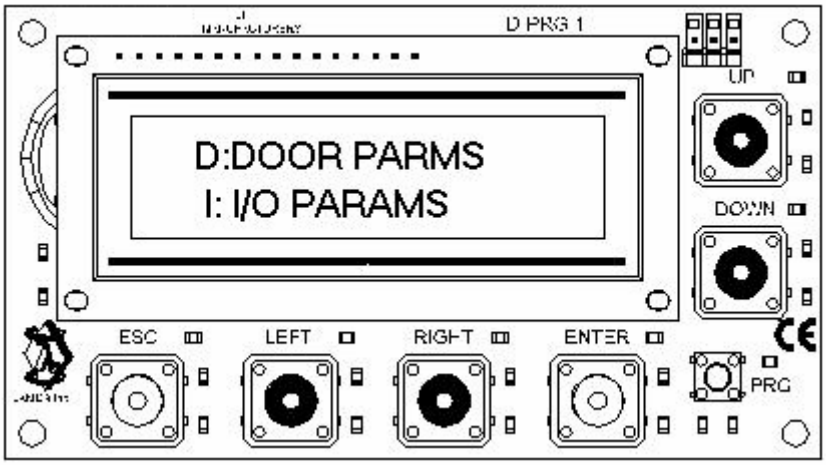


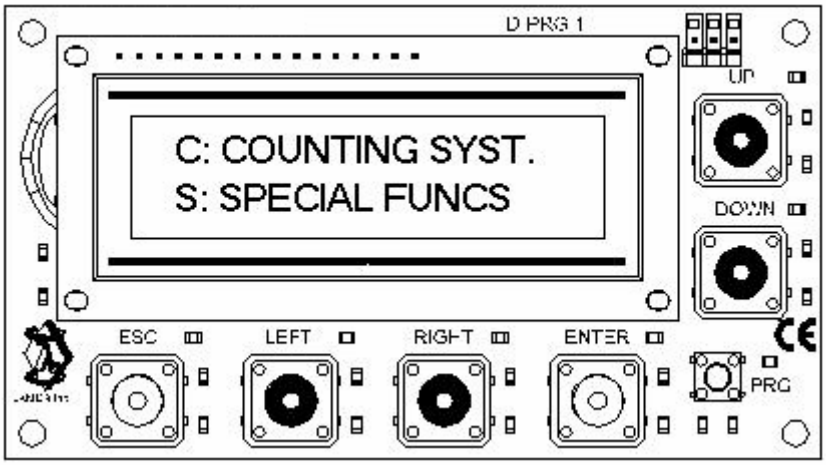
At this stage, the parameters are loaded from the Controller's main board and we are able to modify the parameters.

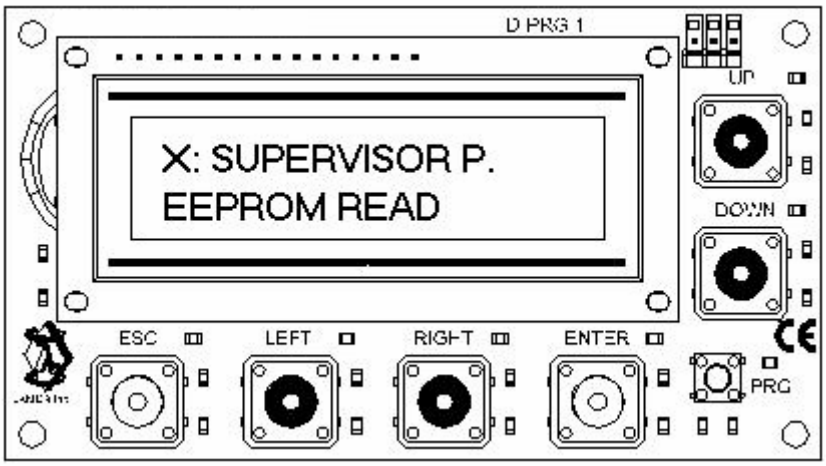
As soon as we get into the main menu, the first screen appears with the group of messages: «G: GEN. PARAMETERS» και «T: TIMERS».

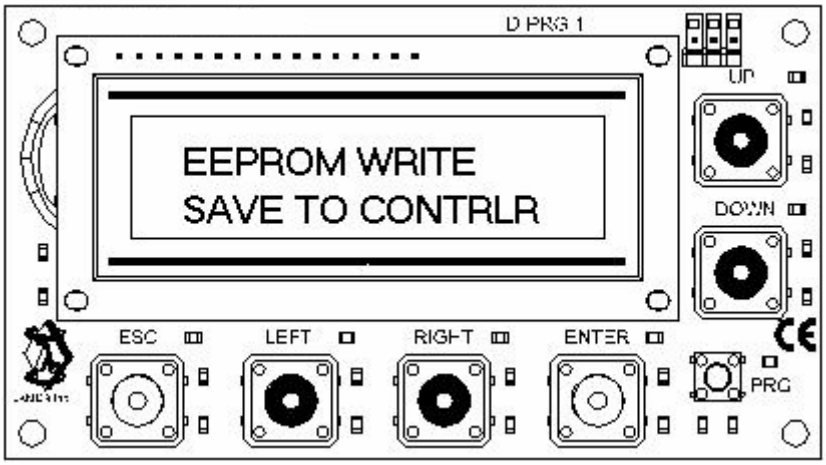


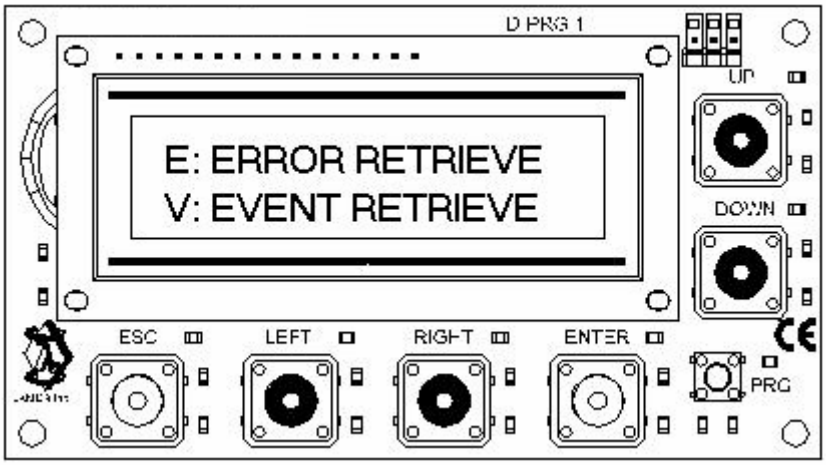
When we press the **LEFT** or the **RIGHT** button the screens of the rest options will appear:

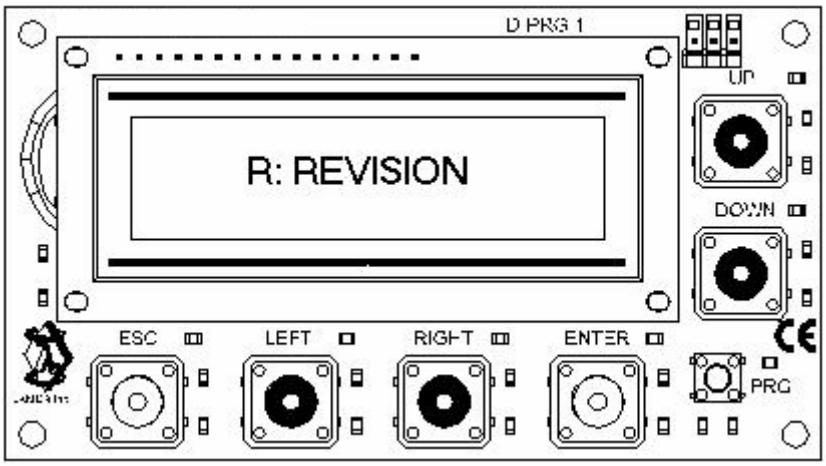

D PRG 1
D:DOOR PARMS
I: I/O PARAMS
UP
DOWN
ESC
LEFT
RIGHT
ENTER
PRG

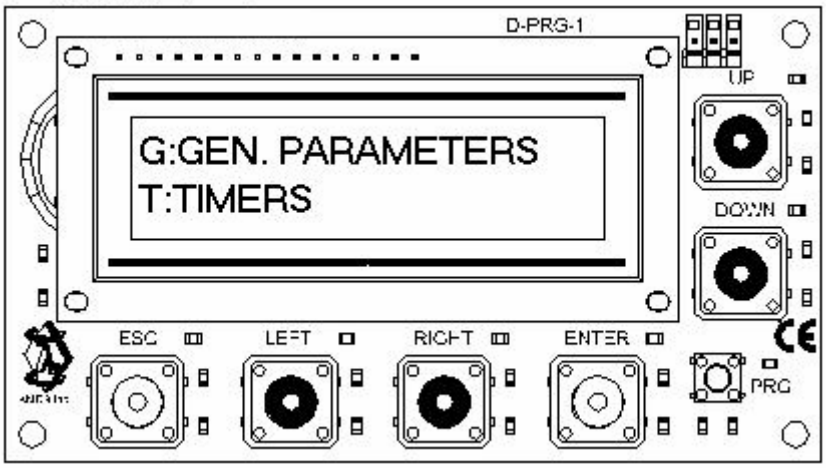

D PRG 1
C: COUNTING SYST.
S: SPECIAL FUNCS
UP
DOWN
ESC
LEFT
RIGHT
ENTER
PRG


D PRG 1
X: SUPERVISOR P.
EEPROM READ
UP
DOWN
ESC
LEFT
RIGHT
ENTER
PRG

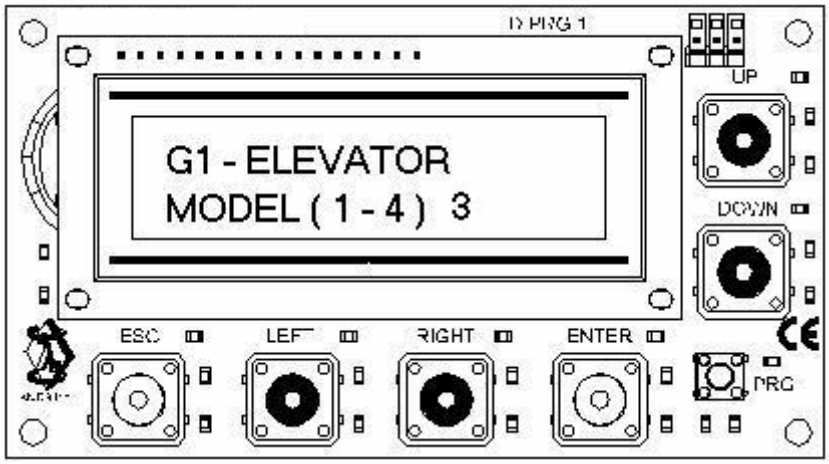

D PRG 1
EEPROM WRITE
SAVE TO CONTRLR
UP
DOWN
ESC
LEFT
RIGHT
ENTER
PRG


D PRG 1
E: ERROR RETRIEVE
V: EVENT RETRIEVE
UP
DOWN
ESC
LEFT
RIGHT
ENTER
PRG


D PRG 1
R: REVISION
UP
DOWN
ESC
LEFT
RIGHT
ENTER
PRG



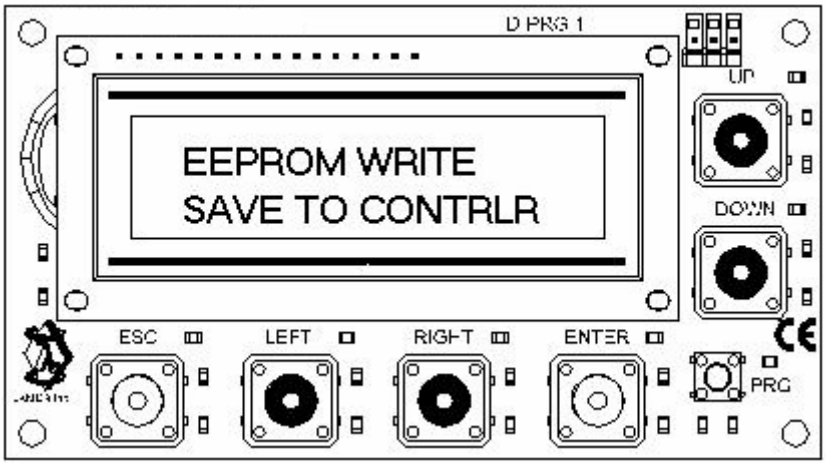
In this screen the GEN. PARAMETERS option is flashing, and if it is selected (by pushing the ENTER button) we will see on the screen the first group of parameters of the GEN. PARAMETERS to be in a state of change/correction mode.



The parameter can be changed with the buttons **UP (increase)** and **DOWN (decrease)**. The values that can be accepted are from **1 to 4 (as it is shown in the picture above and is described in the paragraph 4.6.1. – parameter G1**). If we wish to change this parameter in a hydraulic elevator we have to push the down button (DOWN) twice. The value that flashes will change to 2 and then to 1.As long as we are sure about the value (by checking it with the user's manual), **we press ENTER.**
Then we press ESC to return at the starting menu (GEN.PARAMETERS/TIMERS).

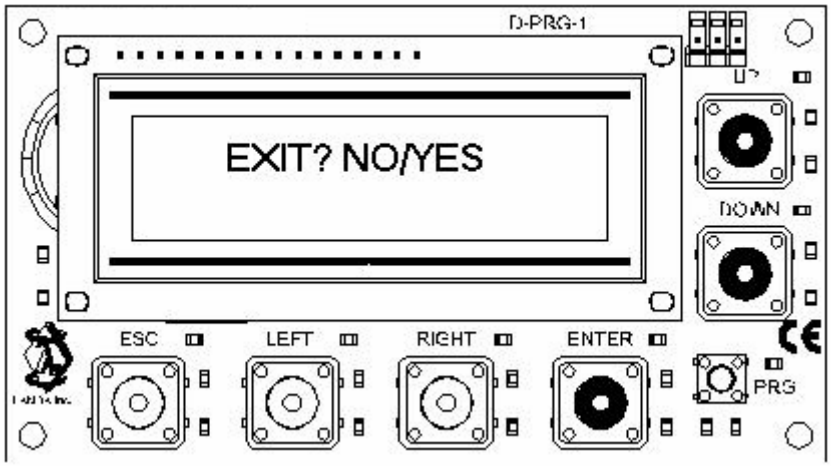
It is recommended: that after any parameter change we reinsure its change by re-entering in the parameter section and by checking if that changed value is flashing.

As long as we are sure about the value of the parameter, we press the button RIGHT and we go to the EEPROM WRITE/SAVE TO CONTRLR screen and we select the SAVE TO CONTRLR option.

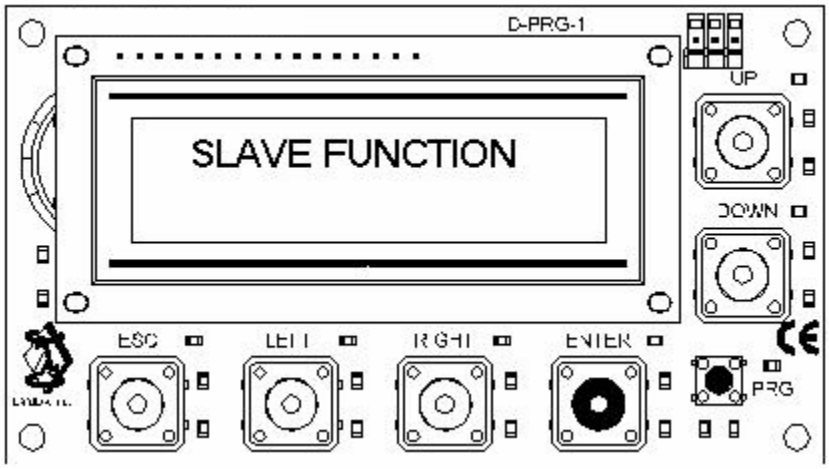


This way the parameters are being transferred in the ROM memory. As soon as the saving finishes, the screen returns to the first group of parameters (G:GEN. PARAMETERS / T:TIMERS).

With a press of ESC the exit screen is being displayed.

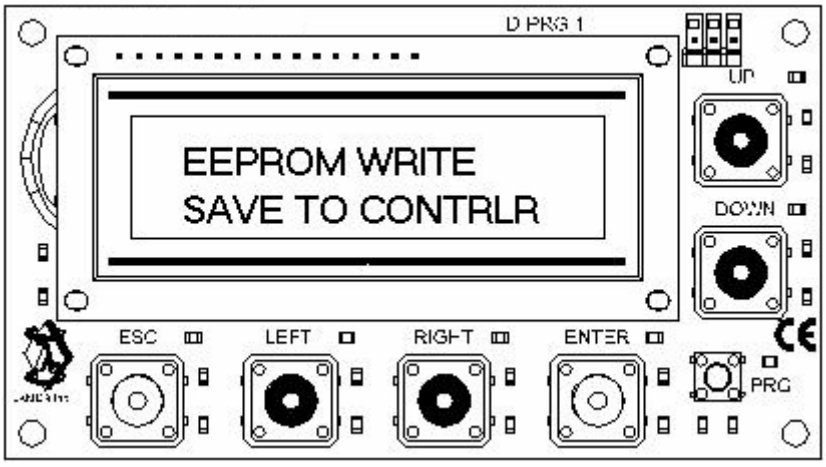


We can select the YES option by pressing the DOWN button. Now, **YES** is flashing and by pressing ENTER the programmer will exit from the programming menu and the starting message will be displayed: SLAVE FUNCTION.



Now we can restart the elevator with the new updated parameters. The pair of 7 – segment displays on the Phoenix board will display "**St**" as the internal controls are in progress. Then, we can see "00" and the first restart begins.

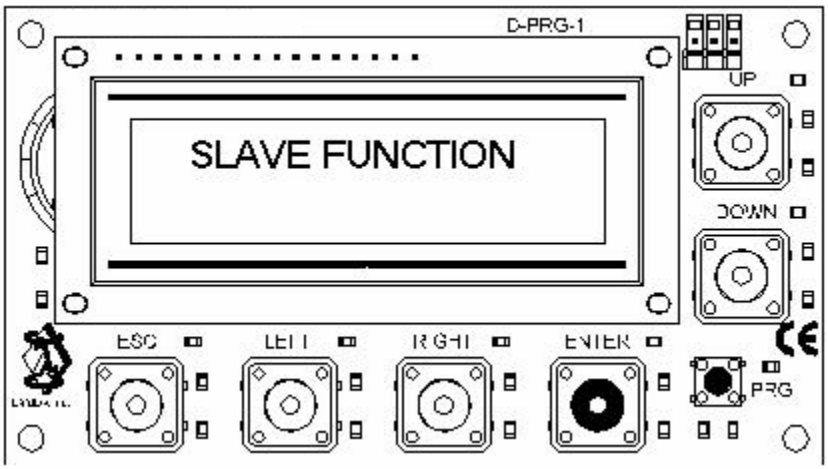
If the setting of the parameters has successfully ended it is recommended to save them at the removable memory (DIP-EEPROM) of the programmer. The procedure is rather simple, we enter the main menu and we are moving with the LEFT or RIGHT buttons on our screen to the option EEPROM WRITE/SAVE TO CONTRLR.



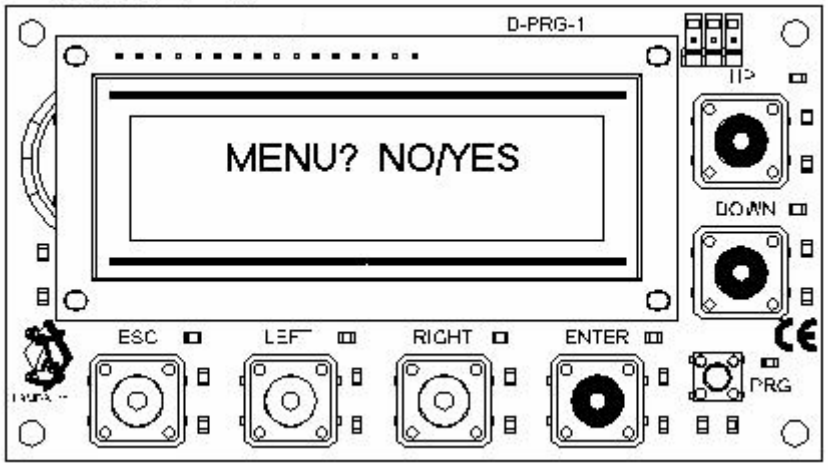
In this screen the "active" option is the one that interests us, so with a press of the **ENTER** button all the parameters will be saved in the DIP-EEPROM of the programmer. By doing this all the range of the parameters will be saved.

If for any reason we want to return to the previous set of saved parameters we will have to go to the main menu and select the X: SUPERVISOR P EEPROM READ option. The EEPROM READ option will transfer the parameters from the DIP-EEPROM to the menu of the programmer. Next we should check the parameters (one by one) if they are the appropriate for the elevator to function properly. If we are sure for the proper functionality of the elevator we have to "download" the parameters in the Phoenix board with the option SAVE TO CONTRLR.

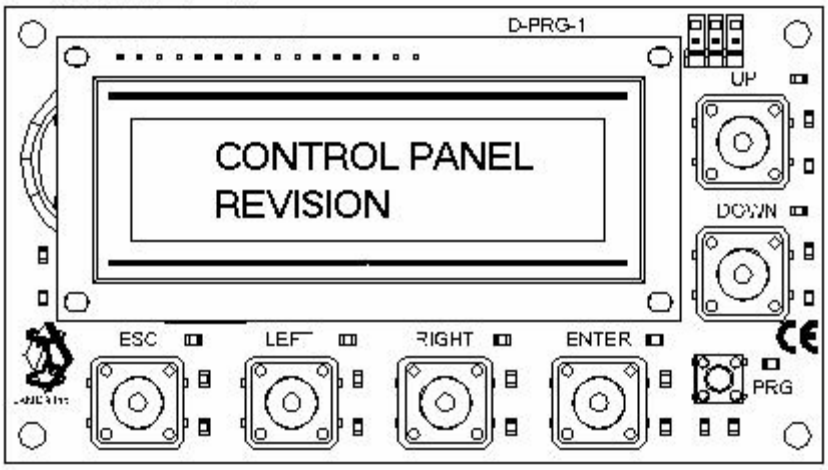
The PHOENIX board has the ability to record the errors that occurred and display them on the screen. Moreover, it can record and display all the latest functions.!



If we want the main menu to be displayed on the screen we have to press the buttons **PRG** and **ENTER** the same time, and the option to enter the MENU screen or not is being given.

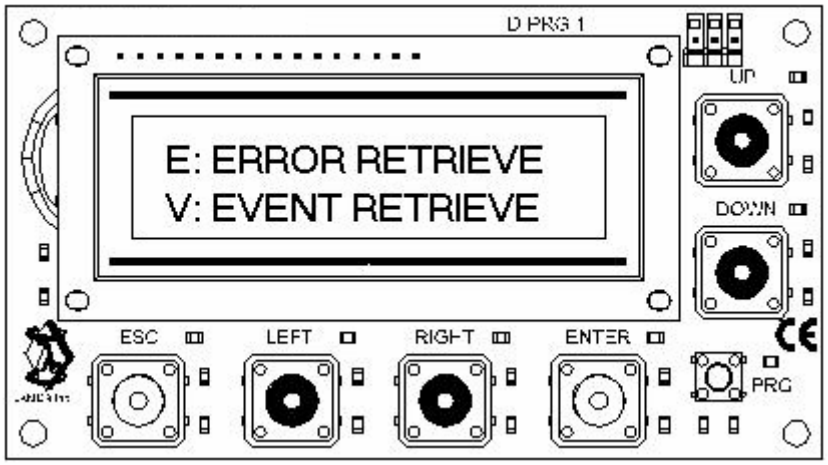


First of all we can see the NO option flashing ot the screen, which is the factory setting, and if we press now the "**ENTER**" button we will return to the default state of the programmer. By using the buttons "**UP**" and "**DOWN**" we can change the selection between "**YES**" and "**NO**". Always the active choice will be the flashing one.
If we select "**YES**" (and then press "**ENTER**") momentarily the screen will display this message: CONTROL PANEL REVISION.

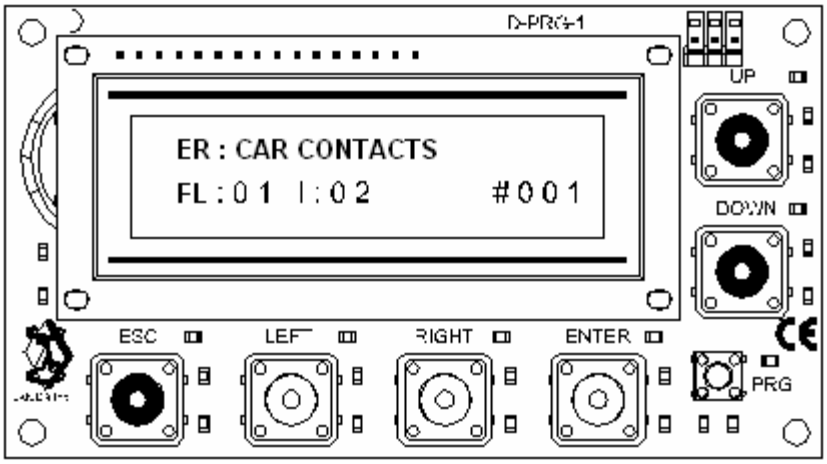


During this function the parameters are been loading from the motherboard and we have the option to change all the parameters.

After this screen we enter the main menu with the buttons **LEFT** or **RIGHT** and we will go to the E: ERROR RETRIEVE / V: EVENT RETRIEVE.



The default selection here is the ERROR RETRIEVE and if we press the **ENTER** button we will go to the first error display screen.



Here we can see the last error. Its description is located in the first line. At the second line we can see the floor that the error occurred, (FL: 01) the ascending number of the error (I: 02) and finally the frequency that this error has occurred (#001). With the buttons UP and DOWN we can move to the list of the errors. If we reach at the end of the list a message will be displayed END LIST or START LIST.
If we wish to exit from the error retrieve screen we press the button ESC. The board returns to the normal operation and the screen displays "SLAVE FUNCTION"
The total amount of saved errors is 91.

If we wish to reset the saved errors we have to press the PRG and ENTER button at the same time and then the ESC button. The board will return to its normal operation and the screen will display the "SLAVE FUNCTION" message.

The same procedure is been followed when we wish to check the latest events occured «V: EVENT RETRIEVE». The total amount of events occurred is 16.

R: REVISION		
R	**CONTROL PANEL REVISION**	In case that the car revision is activated (Input 69=0) there is no motion ability with the use of the UP/DOWN buttons. In order to exit this screen we press the ESC button. In different case (Input 69=1) the Revision process is taken over by the programmer and the car can move using the UP/DOWN buttons. In order to exit this screen we press the ESC button.

4.6.1 Parameters

G: GENERAL PARAMETERS		
G1	**LIFT TYPE (1 – 4)**	1: Hydraulic Elevator 2 Hydraulic Elevator with soft start **(*FW)** 3: Mechanical – Conventional Elevator 4: Mechanical – Conventional Elevator with Inverter
G2	**SPEEDS (1 – 3)**	1: One Speed **(*FW)** 2: 2 speed elevator 3: 3 speed elevator (Inverter only) **(*FW)**
G3	**MID SPEED FLOORS (0-4)**	**Only for elevators with Inverter and 3 speeds.** **(*FW)**

		It is the minimum distance between floors, over which maximum speed is used.
G4	**MARGINAL FL. SPEED (0-4)**	**Only for elevators with Inverter and 3 speeds.** 0: Normal Function. **(*FW)** 1: Motion to the upper most floor with mid. speed. **(*FW)** 2: Motion to the lower most floor with mid. speed. **(*FW)** 3: Motion to the upper most and lower most floors with mid. speed **(*FW)**
G5	**OPERATION SYSTEM (1 – 7)**	1: SIMPLE 2: SIMPLE CALLS 3: Collective down (Collects in down dir) 4: Selective Up/Dwn (1 Button per floor) **(*FW)** 5: Selective Up/Dwn (2 Button per floor) 6: Collective Up (1 Button per floor) 7: Mixed Up-Up/Dwn-Dwn **(*FW)**
G6	**NUMBER OF BASEMENTS (0-9)**	We enter the number of basements of the building.
G7	**NUMBER OF STATIONS (2 – 16)**	MAX VALUES: 1. 5 FULL SELECTIVE 2B 2. 8 DWN COLLECTIVE 3. 8 FULL COLLECTIVE 1B 4. 16 SIMPLE CALLS 5. 7 MIXED CALLS **(*FW)**
G8	**RELEVELLING (0 - 1)**	Relevelling Deactivation(0) Relevelling Activation(1) (Required for pre-open door system, also)
G9	**CALL OPERATION (0-1)**	0 :The activated call buttons are flashing near approach **(*FW)** 1: The activated call buttons are on until the call is executed.
G10	**BACKLIGHT (0-50%)**	% light emission percentage of Buttons. **(*FW)**
G11	**POS. INDICATOR TYPE (0-2)**	0: ABCD binary indications 1: Decimal indications 2: ABCD + 1
G12	**DIRECTION ARROWS (0-5)**	0: Arrows are active only during motion 1: Arrows are active during motion and with next direction. 2: next direction, (Hall-Lantern) 3: next direction, with Flickering during motion **(*FW)** 4: next direction, stay switched on for 2sec and then they switch off 5: next direction, permanently switched on in upward and downward motion
G13	**GONG TYPE (0-5)**	0: Simple GONG at speed change 1: Direction Gong at speed change 2: Simple GONG at landing. 3: Direction Gong at landing. 5:GONG=OFF/ **output 107 is used for Fire Fighting BUZZER**
G14	**FIRE ALARM (0-1)**	0: Moves to the firefighting floor and stays idle with doors closed **(*FW)** 1: Moves to the firefighting floor and stays idle with doors open **(*FW)**
G15	**FIRE ALARM STATION (0-15)**	We set the floor at which the car will stop after a Fire Alarm **(*FW)**
G16	**OUTPUT FROM FIRE ALARM (0-1)**	If a Reset or Revision needed after the Fire Alarm procedure **(*FW)**
G17	**PARKING STATION (0-15)**	We set the floor at which we want the car to PARK
G18	**SPECIAL PARK STATION (0-15)**	This is the PARK station floor when Input «**S_Park**» is active
G19	**INVERTER TYPE (0-2)**	0: FUJI multy **(*FW)** 1: FUJI FRENIC **(*FW)** 2: **YASKAWA**
G20	**LOW CONSUMPTION (Y - N)**	Y: After the end of the Low Consumption time the displays switch off **(*FW)** N: No Function. **(*FW)**

G21	**CALLING FILTER (Y - N)**	Y: If the photocell is not active and there are over 5 calls **(*FW)** N: Inactive Function **(*FW)**
G22	**LANGUAGE PARAMETER**	0: English **(*FW)** 1: Greek **(*FW)** Etc.

T: TIMERS		
T1	**TRAV. TIME FAST SP. (SEC: (0 – 99sec)**	The maximum travel time between two consecutive stations.
T2	**TRAV. TIME SLOW SP. (SEC: (0 – 50sec)**	The maximum travel time allowed for the car at slow speed during normal operation.
T3	**MAINTENANCE TIMER (0 – 50sec)**	The maximum time allowed for the car to move at maintenance speed.
T4	**LIGHT TIMER 0-99 sec)**	The waiting time until the car light turns off.
T5	**STOP TIMER (0 – 10 sec)**	The minimum time at station, for a car with semi-automatic doors. It clears to zero value once the doors open.
T6	**STAR-DELTA TIMER (0 – 20 sec)**	The time in seconds that the STAR stays active during start.
T7	**RELEVELLING TIMER (0 – 30 sec)**	The maximum time required for the completion of relevelling.
T8	**LOCK TIMER (0 – 40sec)**	The maximum time that lapses between the events of CAM activation and the lock contact closing.
T9	**CAM DELAY TIMER (0 – 10sec)**	The time in seconds that the CAM stays active after a stop.
T10	**PUMP DELAY TIMER (0.0 – 4.0sec)**	The delay in multiples of 0.1 seconds of the pump after a stop. If set to 0 (zero) is deactivated.
T11	**PARK TIMER (0 – 99min)**	The time that the controller awaits the PARK command. If set to 0 (zero) is deactivated.
T12	**PARK HYDRAUL TIMER (0 – 99min)**	After the time set for this timer the car moves to the lowest station. If set to 0 (zero) is deactivated.
T13	**ARRIVAL GONG (0 – 9 sec)**	The duration in seconds of the GONG pulse.
T14	**LOW CONSUMPTION TIME (0 – 99min)**	The maximum allowed idle time until the indicators are switched off. **(*FW)**
T15	**DELAY ON RELEASE (1 – 9 sec)**	After an event of a voltage drop the time set in this parameter have to elapse before the start of release process evacuation.

D: DOOR PARAMETERS		
D1	**DOOR TYPE A (0-6)**	0: NO Door 1: Semiautomatic (Bus) 2: Single signal with permanent closing command 3: Two signal 4. Two signal with permanent closing command 5. For Future Use 6. Single signal with permanent opening command
D2	**DOOR OPENING TIME A (0-99 sec)**	Time at a station with doors open. If it is set at 99 it is to floor with door open
D3	**DOOR CLOSING TIME A (0 – 99sec)**	Time in which the door has to close so that no error occurs.
D4	**TIME OP. DOOR A (-> REOPEN): (0 – 99sec)**	The Reopen command is given for the following reasons: 1: Photocell 2: Obstruction 3: Reopen (Car Button)

		4: A Car call or a Landing call is received for the station where the car is stopped.
D5	**NUMB. OF CLOS. RETRIES A (2 - 9)**	We enter the desired number of continuous attempts to close the doors before the controller decides not to try closing the doors for another 5 minutes. The counter is activated with obstruction.
D6	**EXTENDED DOOR CLOS. TIME A (0 – 3 sec)**	The time that the door closing command stays active after the door has closed.
D7	**DELAY ON OPEN DOOR**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης. **A (0 - 3 sec)**	The time that the door closing command is delayed right after a stop at a station.
D8	**PRE-OPENING ACTIVE (Y - N)**	NO: Inactive YES: Active
D9	**DOOR A CLOS. ON FLOOR '0'**	Opens Normally («1») Will not open at the specific floor («0»)
D10	**DOOR A CLOS. ON FLOOR '1'**	Opens Normally («1») Will not open at the specific floor («0»)
D11	**DOOR A CLOS. ON FLOOR '2'**	Opens Normally («1») Will not open at the specific floor («0»)
D12	**DOOR A CLOS. ON FLOOR '3'**	Opens Normally («1») Will not open at the specific floor («0»)
D13	**DOOR A CLOS. ON FLOOR '4'**	Opens Normally («1») Will not open at the specific floor («0»)
D14	**DOOR A CLOS. ON FLOOR '5'**	Opens Normally («1») Will not open at the specific floor («0»)
D15	**DOOR A CLOS. ON FLOOR '6'**	Opens Normally («1») Will not open at the specific floor («0»)
D16	**DOOR A CLOS. ON FLOOR '7'**	Opens Normally («1») Will not open at the specific floor («0»)
D17	**DOOR A CLOS. ON FLOOR '8'**	Opens Normally («1») Will not open at the specific floor («0»)
D18	**DOOR A CLOS. ON FLOOR '9'**	Opens Normally («1») Will not open at the specific floor («0»)
D19	**DOOR A CLOS. ON FLOOR '10'**	Opens Normally («1») Will not open at the specific floor («0»)
D20	**DOOR A CLOS. ON FLOOR '11'**	Opens Normally («1») Will not open at the specific floor («0»)
D21	**DOOR A CLOS. ON FLOOR '12'**	Opens Normally («1») Will not open at the specific floor («0»)
D22	**DOOR**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης. **A CLOS. ON FLOOR '13'**	Opens Normally («1») Will not open at the specific floor («0»)
D23	**DOOR A CLOS. ON FLOOR '14'**	Opens Normally («1») Will not open at the specific floor («0»)
D24	**DOOR A CLOS. ON FLOOR '15'**	Opens Normally («1») Will not open at the specific floor («0»)
D25	**DOOR TYPE B (0-1)**	0: NO Door **(*FW)** 1: Semiautomatic (Bus) **(*FW)** 2: Single signal with permanent closing command **(*FW)** 3: Two signal **(*FW)** 4. Two signal with permanent closing command **(*FW)** 5. For Future Use **(*FW)** 6. Single signal with permanent opening command **(*FW)**
D26	**DOOR OPENING TIME B (0-99 sec)**	Time at a station with doors open **(*FW)**
D27	**DOOR CLOSING TIME B**	Time in which the door has to close so that no error occurs. **(*FW)**

	(0 – 99sec)	
D28	**NUMB. OF CLOS. RETRIES B (2 - 9)**	We enter the desired number of continuous attempts to close the doors before the controller decides not to try closing the doors for another 10 minutes. **(*FW)**.
D29	**TIME OP. DOOR B (-> REOPEN): (0 – 99sec)**	The Reopen command is given for the following reasons: 1: Photocell **(*FW)** 2: Obstruction **(*FW)** 3: Reopen (Car Button) **(*FW)** 4: A Car call or a Landing call is received for the station where the car is stopped. **(*FW)**
D30	**EXTENDED DOOR CLOS. TIME B (0 – 3 sec)**	The time that the door closing command stays active after the door has closed. **(*FW)**
D31	**DELAY ON OPEN DOOR B (0 - 3 sec)**	The time that the door closing command is delayed right after a stop at a station. **(*FW)**
D32	**PRE-OPENING ACTIVE (Y - N)**	NO: Inactive **(*FW)** YES: Active **(*FW)**
D33	**DOOR B CLOS. ON FLOOR '0'**	Opens Normally («1») Will not open at the specific floor («0»)
D34	**DOOR B CLOS. ON FLOOR '1'**	Opens Normally («1») Will not open at the specific floor («0»)
D35	**DOOR B CLOS. ON FLOOR '2'**	Opens Normally («1») Will not open at the specific floor («0»)
D36	**DOOR B CLOS. ON FLOOR '3'**	Opens Normally («1») Will not open at the specific floor («0»)
D37	**DOOR B CLOS. ON FLOOR '4'**	Opens Normally («1») Will not open at the specific floor («0»)
D38	**DOOR B CLOS. ON FLOOR '5'**	Opens Normally («1») Will not open at the specific floor («0»)
D39	**DOOR B CLOS. ON FLOOR '6'**	Opens Normally («1») Will not open at the specific floor («0»)
D40	**DOOR B CLOS. ON FLOOR '7'**	Opens Normally («1») Will not open at the specific floor («0»)
D41	**DOOR B CLOS. ON FLOOR '8'**	Opens Normally («1») Will not open at the specific floor («0»)
D42	**DOOR B CLOS. ON FLOOR '9'**	Opens Normally («1») Will not open at the specific floor («0»)
D43	**DOOR B CLOS. ON FLOOR '10'**	Opens Normally («1») Will not open at the specific floor («0»)
D44	**DOOR B CLOS. ON FLOOR '11'**	Opens Normally («1») Will not open at the specific floor («0»)
D45	**DOOR B CLOS. ON FLOOR '12'**	Opens Normally («1») Will not open at the specific floor («0»)
D46	**DOOR B CLOS. ON FLOOR '13'**	Opens Normally («1») Will not open at the specific floor («0»)
D47	**DOOR B CLOS. ON FLOOR '14'**	Opens Normally («1») Will not open at the specific floor («0»)
D48	**DOOR B CLOS. ON FLOOR '15'**	Opens Normally («1») Will not open at the specific floor («0»)

I: I/O PARAMETERS		
I1	**MAINTENANCE NC (Y - N) (69)**	N:NO (48Vdc trigger) It will go into revision in we send 48VDC Y: NC (0Vdc trigger) It will go into revision in we send 0VDC (Maintenance Input – if activated the control panel enters into maintenance mode and motion can take place only from Car calls 0 και

		1 – or from the programmable inputs 1 and 2 **(*FW)**)
I2	**OVERLOAD NC (Y - N) (53)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger) If activated while not in motion it triggers the relay output OVERLOAD
I3	**FULL LOAD NC (Y - N) (54)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger) If activated while not in motion it triggers the relay output OVERLOAD
I4	**HALF LOAD NC (NAI - OXI) (55)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I5	**VOLTAGE MONITORING (Y - N) (56)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I6	**REOPEN NC (Y - N) (57)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I7	**CLOSE DOORS NC (Y - N) (58)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I8	**PHOTOCELL A NC (Y - N) (59)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I9	**OBSTRUCTION A NC (Y - N) (99)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I10	**PRO_INP 1 NC (Y - N) (98)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I11	**PRO_INP 2 NC (Y - N) (97)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I12	**PRO_INP 3 NC (Y - N) (64)**	N: NO – Open Contact (48Vdc trigger) **(*FW)** Y: NC – Closed Contact (0Vdc trigger) **(*FW)**
I13	**FUNCTIONS PRO_INP 1 (0 – 9)**	1: PHOTO B 3: S_PARK (When activated the PARK station changes) 5: (Reserved) 6: (Reserved) 7. (Reserved) 9: Shooting Bolts
I14	**FUNCTIONS PRO_INP 2 (0 – 8)**	1: (Reserved) 2: (Reserved) 3: (Reserved) 4: (Reserved) 5: (Reserved) 6: (Reserved) 7. Lock Lift 8. (Reserved)
I15	**FUNCTIONS PRO_INP 3 (0 – 7)**	0: (Reserved) 1: (Reserved) 2: (Reserved) 3: Reserved) 4: (Reserved) 5: (Reserved) 6: (Reserved) 7: ZONE B
I16	**INPUT FOR FIRE NC (Y - N) (68)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)
I17	**EXPRESS INP NC (Y - N) (67)**	N: NO – Open Contact (48Vdc trigger) Y: NC – Closed Contact (0Vdc trigger)

I18	**FUNCTIONS PRO_OUT_ 1 (0 – 2) (131 - 132)**	0: Door Commands 131 close / 132 open (Door B) 1: 131 open command / 132 close command for door announce (not serial) 2: RESERVED
I19	**FUNCTIONS PRO_OUT_2 (0 – 2) (121)**	0: ALARM FILTERING 1: (Reserved) 2: (Reserved) 3: (Reserved) 4: (Reserved) 5: (Reserved) 6: STATION 5 7: (Reserved)
I20	**FUNCTIONS PRO_OUT_3 (0 – 2) (104)**	0: (Reserved) 1: (Reserved) 2: (Reserved) 3: (Reserved) 4: (Reserved) 5: (Reserved) 6: STATION 4 7: (Reserved)
I21	**LIGHT OUTPUT NC (Y - N) (420)**	N: NO – Open Contact Y: NC – Closed Contact

C: COUNTING SYSTEM		
C1	**COUNTING SYSTEM (0 – 1)**	**0: OTINOR (*FW)** **1: LAMDA**
C2	**SHORT FLOOR 1**	**(*FW)**
C3	**SHORT TYPE 1**	**(*FW)**
C4	**SHORT FLOOR 2**	**(*FW)**
C5	**SHORT TYPE 2**	**(*FW)**
C6	**SHORT FLOOR 3**	**(*FW)**
C7	**SHORT TYPE 4**	**(*FW)**
C8	**SHORT FLOOR 5**	**(*FW)**
C9	**SHORT TYPE 6**	**(*FW)**
C10	**REVISION LIMITS**	0: Stops at Pre-limits 1: Reaches the top and bottom stations

S: SPECIAL FUNCTIONS		
S1	**GROUP OPERATION (0-1)**	0: SIMPLEX **(*FW)** 1: Group Operation **(*FW)**
S2	**ELEVATOR ID (0-7)**	ELEVATOR ADDRESS **(*FW)**
S3	**DUPLEX TIMER (SEC) (0 – 99 sec)**	The time of call execution in group operation. If an elevator does not execute a call within time then a different elevator picks up the calls **(*FW)**.

S3	**GSM**	ERROR TRANSMISSION VIA GSM **(*FW)**
S4	**VOICE**	SERIAL VOICE ANNOUNCER 0 : Deactivation of serial announcer 1 : Activation of serial announcer
S5	**CAN**	MODULE CAN **(*FW)**
S6	**MODEM**	TELEMETRY **(*FW)**

V: EVENT RETRIEVE

The event retrieve menu option recalls from memory the most recent events. It can recall up to 16 events.

E: ERROR RETRIEVE

The error retrieve menu option recalls from memory the most recent errors. It can recall up to 91 errors.

EEPROM READ

Reads the stored parameters held in the EEPROM of the programmer.

EEPROM WRITE

Stores the parameters on the EEPROM of the programmer.

SAVE TO CONTRLR

Stores the parameter settings on the main board of the controller. It is necessary to be performed every time changes of the parameters are made.

X: SUPERVISOR PARAMETERS

X1	**MAINTENANCE LIMITS** **(Y - N)**	N (Default): While in Maintenance we can move up to the final stations. Y: While in Maintenance we can move up to Pre-limits.
X2	**RESET STATION** **(Y - N)**	N (Default): Performs a reset at the bottom floor. **(*FW)** Y: Performs a reset at the top floor. **(*FW)**
X3	**NUMBER OF CONTINUOUS RESETS** **(2 - 9)**	If this many continuous RESETS occur then the elevator expects a call for a new RESET.(FW)
X4	**MAINT. DRIVE K1 – K2 – K3** **(Y - N)**	Y: DOWN – UP – FAST N: Inactive Function
X5	**RESTART TIME AFTER A SF** **(0 – 10 sec)**	The minimum time required for restarting the car after an SF.
X6	**TIME FOR NEW RELEVELLING** **(0 – 10 sec)**	The minimum time required to start a new attempt for relevelling.
X7	**STOP DELAY** **(0 – 5 sec)**	Delay at station after a stop switch input becomes active.
X8	**DELAY ON CHANGE** **(0 – 5 sec)**	Delay at change of speed after a change of speed input becomes active.

X9	**DEPARTURE TIME (0 – 3 sec)**	The maximum time for departing from a station when no reason for delay is present.
X10	**IDLE TIME AFTER A STOP (0 – 99 sec)**	The maximum time that the car**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης.** remains idle after a stop. If after a stop the door opens or a call is given this timer becomes equal to timer T4.
X11	**UP PRE-LIMIT SWITCH NO (Y/N) (66)**	N: NC – Closed Contact Y: NO – Open Contact
X12	**DOWN PRE-LIM SWITCH NO (Y/N) (65)**	N: NC – Closed Contact Y: NO – Open Contact
X13	**ERROR REPEAT LOCKING PANEL: (1 – 9)**	After an error in the traveling timer the control panel blocks. 1-9: Number of attempts before the control panel blocks.(FW)
X14	**GONG OFF TIME (SEC) (0-5)**	Delay time between 2 gongs when the 2 gong function is active.

The indication **(*FW)** in the comments column of the parameters refers to **Future Work.**

4.6.2 Errors

	ERROR NAME	CATEGORY Error	7-Seg DISPLAY	POSSIBLE CAUSE – DESCRIPTION
0	**NORMAL OPERATION**	-	FLOOR	There are no errors.
		ERRORS RELEVANT TO THE PARAMETERS		
1	**LIFT TYPE**	**A**	**G1**	**G1 = 0**
2	**NUMB. OF SPEED**	**A**	**G2**	**G2 = 1 With Inverter** **G2 = 3 Without Inverter**
3	**STATIONS SET**	**A**	**G3**	**Wrong value in parameter «G6: Number of Stations»** 2-5 for call collection with 2 buttons 2-8 for with 1 button 2-16 for APB Car and Landing calls
4	**F.ALARM STATI**	**A**	**G4**	**Wrong value in parameter «G15: FIRE ALARM STATION**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης.**»** Allowed values 0-Max. Number of Floors.
5	**PARK STATION**	**A**	**G5**	**Wrong value in parameter «G17:PARKING STATION**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης.**»** Allowed values 0-Max. Number of Floors.
6	**SP.PARK STATI**	**A**	**G6**	**Wrong value in parameter «G18:SPECIAL PARK STATION**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης.**»** Allowed values 0-Max. Number of Floors.
7	**PRE-OPENING**	**A**	**G7**	**Wrong value in parameter G5** (The relevelling G8 must be active)
		TIMER ERRORS		
8	**FAST SPEED TM**	**B**	**T1**	**The Fast speed timer has elapsed (Performs as many resets as set with parameter X13 and then the control panel blocks)**
9	**SLOW SPEED TM**	**B**	**T2**	**The Slow speed timer has elapsed (Performs as many resets as set with parameter X13 and then the control panel blocks)**
10	**MAINTENANCE T**	**-**	**T3**	**The Maintenance timer has elapsed (The elevator stops for 30 sec and then restarts operation)**
11	**RELEVELLING T**	**B**	**T5**	**The Relevelling timer has elapsed (Performs as many resets as set with parameter X13 and then the control panel blocks)**
12	**CAM DL TIMER**	**C**	**T6**	**Timer has elapsed**
13	**CLOS. TIME D-A**	**C**	**T7**	**Timer has elapsed**
14	**CLOS. TIME D-B**	**C**	**T8**	**(*FW)**
		FLOOR SELECTOR / COUNTING SYSTEM		
16	**PRE-TERM. OPEN**	**Reset**	**H1**	**Both Pre-limits open**
17	**COUNTING UP**	**Reset**	**H2**	**Missing counting during the upward motion** (Floor Selector)
18	**COUNTING DOWN**	**Reset**	**H3**	**Missing counting during the downward motion** (Floor Selector)
19	**STP SWITCH UP**	**Reset**	**H4**	**No signal from the magnetic switch.** (Magnetic switch fault or bad connection or wrong placement of the magnet)

20	**STP SWITCH DN**	**Reset**	**H5**	**No signal from the magnetic switch.** (Magnetic switch fault or bad connection or wrong placement of the magnet)
21	**ZONE SWITCH A**	**Reset**	**H6**	**During Landing or Relevelling there is no signal is ZONE switch A**
22	**ZONE SWITCH B**	**Reset**	**H7**	**During Landing or Relevelling there is no signal is ZONE switch B**
23	**NO ZONE**	**Reset**	**H8**	**During Landing or Relevelling there is no signal from the SF**
24	**WRONG ZONE**	**Reset**	**H9**	**Signal from the SF at a position that is not expected (*FW) Error in pre-open.**
25	**OSCILLATION**	**Reset**	**HB**	**Oscillation around the position of the station during relevelling.**
26	**RELEV. NO ZONE**	**Reset**	**HC**	**During relevelling the car got out of the zone.**
		SAFETY CIRCUIT		
27	**UP TERMINAL**	**A**	**A1**	**Up PRE-LIMIT has been reached.**
28	**DOWN TERMINAL**	**A**	**A2**	**Down PRE-LIMIT has been reached.**
29	**STOP ENG. ROOM**	**-**	**A3**	**A STOP has occurred during motion. The car stops and restarts after as much time as set at parameter X10 has passed.**
30	**STOP WELL**	**-**	**A4**	**A STOP has occurred during motion. The car stops and restarts after as much time as set at parameter X10 has passed.**
32	**CAR STOP**	**-**	**A5**	**A STOP has occurred during motion. The car stops and restarts after as much time as set at parameter X10 has passed.**
33	**STATION CONTA**	**-**	**A6**	**A contact has failed during motion. The car stops and restarts after as much time as set at parameter X5 has passed.**
34	**CAR CONTACTS**	**-**	**A7/UD**	**A contact has failed during motion. The car stops and restarts after as much time as set at parameter X5 has passed / the counter D5 has been expired.**
35	**LOCKS**	**-**	**A8**	**A contact has failed during motion. The car stops and restarts after as much time as set at parameter X5 has passed.**
36	**LOCKS STUCK**	**A**	**A9**	**Without any input from the CAM the locks are closed.**
		FUNCTIONS		
37	**ELEMENT CHECK**	**C**	**F1**	**Element Check circuit interrupted.**
38	**POWER RELAY**	**C**	**F2**	**The Power Relay did not open at stopping.** Or it did not close after a command (Used in VVVF)
39	**BREAK RELAY**	**C**	**F3**	**The Break Relay did not open at stopping.** Or it did not close after a command (Used in VVVF)
40	**MOTOR THERMIS**	**C**	**F4**	**Motor overheating**
41	**OIL THERMISTO**	**C**	**F5**	**Oil overheating (Hydraulic Elevator)**
42	**AMBIENT TEMP**	**C**	**F6**	**Car overheating**
43	**INVERTER ERR**	**C**	**F7**	**Error Input (INVERTER). (*FW)**
44	**MAX. NUMB. LINK**	**A**	**F8**	**Elevator Lock (*FW)**
45	**VOLT. MONITOR**	**C**	**F9**	**Power Outage**
46	**OVERLOAD**	**C**	**F10**	**Overload Input**
47	**PHOTOCELL A**	**C**	**F11**	**Activated for 2min continuously (override)**
48	**PHOTOCELL B**	**C**	**F12**	**Activated for 2min continuously (override) (*FW)**
		MEMORY		
49	**PARAMETER**	**B**	**E1**	**Distortion of Parameter Data (*FW)**

	DAT			
50	**ERROR DATA**	**B**	**E2**	**Distortion of Error Data (*FW)**
51	**MEMORY ERROR**	**B**	**E3**	**Will not store parameters in memory (*FW)**

A: Blocks the Control Panel
B: Programmable depending on the Block State
C: Does not Block and continues operation as soon as the error is removed.

4.7 Operation Systems

01: SIMPLE
In this system, calls are performed the way they did in the early versions of elevators that had no memory chips (ONE call is executed each time)

02: AUTOMATIC PUSH BUTTON CONTROL (APB)
In this system the landing and car calls are uniform and are executed depending on the direction of the car motion. In simple terms all calls are considered as car calls and are executed as the car passes from the relevant floors.
Example: The car is at the ground floor and the controller receives a call from the 5th floor. The car moves upwards. During its motion and before it reaches the 3rd floor someone calls it from the 3rd floor. The car will perform a stop at the 3rd floor and then will continue its motion towards the target floor which remains the 5th floor.

03: DOWN COLLECTIVE (DCS)
In this system landing calls and car calls are considered to be different. Car calls have a priority in execution and landing calls are executed during the downward motion of the elevator. The change to the direction of the elevator happens when there are no more car calls to be executed in the current direction. This means that the elevator moving upwards will execute all of its car calls in series. When they are all executed it will check if there are any other calls in the same direction and it will execute them as well. If there are no other calls in the same direction it will start its downward motion and execute all its car and landing calls in series. The aim of this call system is to serve faster the car in its upward motion. Generally, it is used in residential buildings where landing calls are mostly demanding the move of the elevator to the ground floor.
Examples:

1. The car is at the ground floor and the controller receives a landing call from the 5th floor. The car starts moving upwards. During its motion and BEFORE the car reaches the 3rd floor someone pushes the call button from the 3rd floor. The car will NOT stop at the 3rd floor but only during its downward motion. This means that once it reaches its target floor (5th floor) and the user inside the car chooses to travel to the ground floor the car will stop at the 3rd floor during its downward motion.
2. The car is at the 5th floor and it receives a landing call from the ground floor. The elevator starts moving downwards. During its motion and BEFORE the car reaches the 3rd floor someone presses the call button at the 3rd floor. In this case the car will stop at the 3rd floor and then continue its motion towards the target floor (ground floor).

04: FULL COLLECTIVE (FCS)

This system requires separate calls for the car and separate calls for the floors as well as the intention for upward motion, and separate landing calls with the intention for downward motion. This system finds applications in office buildings where people are moving in both directions. In this system landing calls are recognized (upward or downward motion) and executed with the same priority as car calls in the same direction.

When there no car or landing calls in the current direction the calls made in the opposite directions are being executed while maintaining the motion of the elevator.

For example, if during the change of speed for stopping at the 3rd floor there are no car calls for upper floors or there are no landing calls for floors higher than the 3rd floor then the controller considers whether there are car calls for the 4th or upper floors. In case that there are more than two such calls for downward motion, the higher one is being executed and thereafter we have a change in direction. If the car is in a downward motion the exact opposite procedure is being followed.

05: UP COLLECTIVE (UCS)

This system operates with the exact **opposite** logic as in the down collective system. Meaning that all car calls are being executed during the downward motion and landing calls are being executed during the upward motion. This system finds applications in underground parking lots and generally when there are many basements.

5 CONTROL CABINET INSTALLATION

5.1 Tools to be used during installation

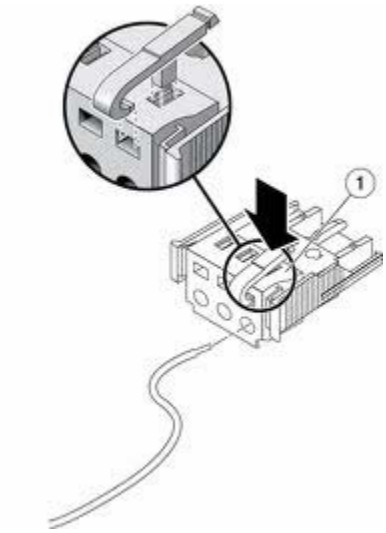
The necessary tools for the control cabinet installation Diomedes MR V1.0 are the following:
Screwdrivers:

- Slotted n. 3.5 x 75 (0.1378 in x 2.9528in)
- Slotted n. 5.5 x 100 (0.2165 x 3.937 in)
- Phillips PH1 – PH3 depending on the wattage of the lift motor

Power Drill:

- Power drill with a 10 mm drill (0.3937 in)

Clamp:



5.2 Control Cabinet casing

The casing dimensions can be seen in figure 5-1. As it appears in the figure we have accounted space for a Fan (picture 5-1) and an air filter (picture 5-2). The Fan works along with the cabin lights and is necessary for the reduction of the heat produced inside the control cabinet. The air filter is used to block dust from entering the casing. On the front of the case one can notice a STOP button as well as a "CABIN AT STATION" LED Indicator (picture 5-3). All control cabinets are equipped with a fluorescent bulb light with local switch.

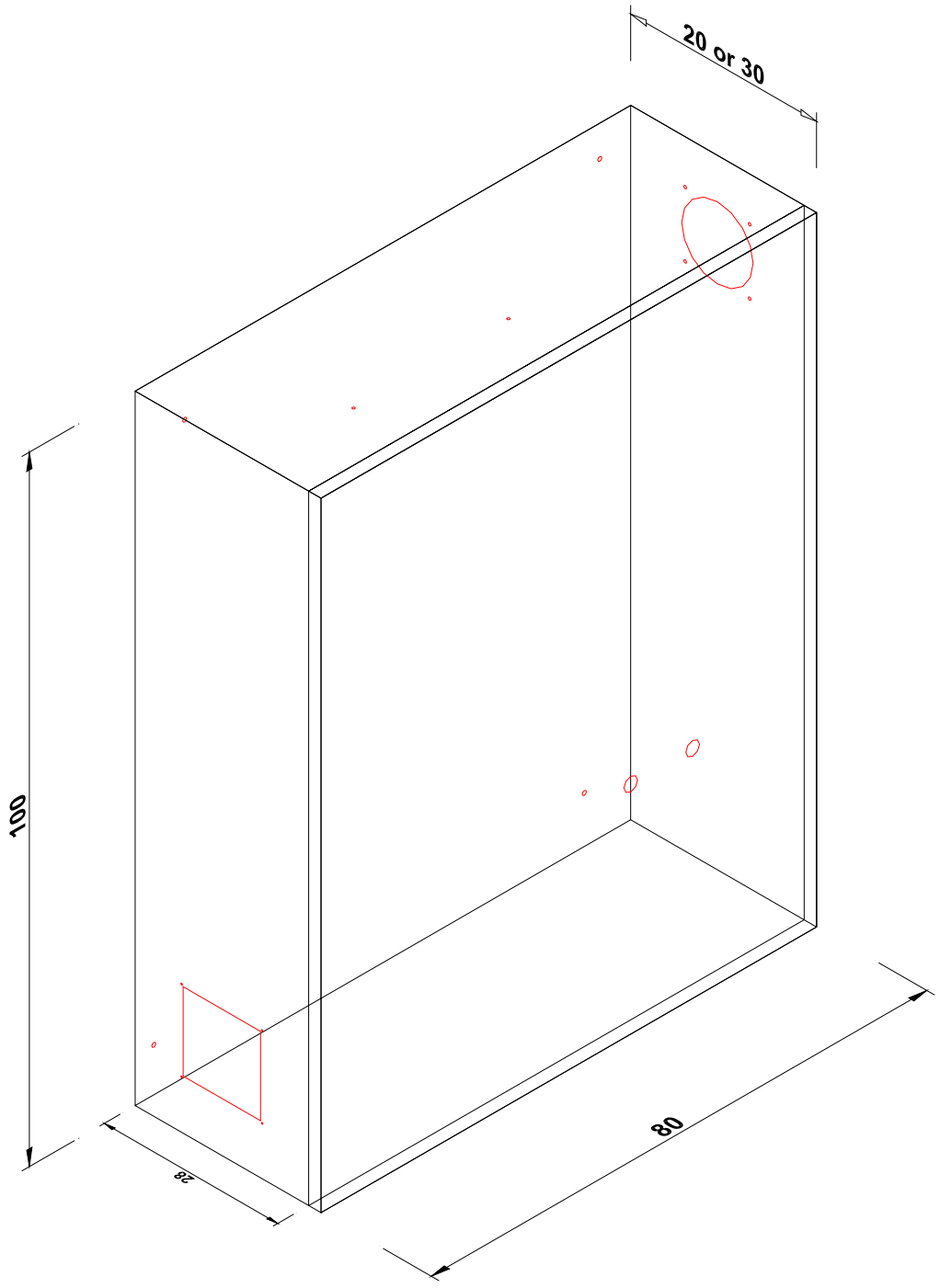


Figure 5-1 Casing Dimensions

Picture 5-1 Fan

Picture 5-2 Air Filter

Picture 5-3 Emergency STOP - "CABIN AT STATION" LED Indicator

5.3 Control Cabinet's Terminal Blocks

The terminal blocks of the control cabinet are being described in the following tables. Each terminal block has its own label starting with the letter **X** and each of its outputs has its own label depending on its control operation. Our terminal blocks have been designed in order to make the installer's work easier.

Terminal block **X1** is related to the machine room connections. Terminal blocks **X2**, **X3**, **X4**, **X5**, **X6**, are related to the cabin wiring (trailing cables) while terminal blocks **X7** and **X8** are associated with the shaft wiring (LOOM). We also offer the option for shaft lighting to either use a push button and a latch relay or a switch with allé retour connection, on terminal block **X13**.

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X1	R	R	R	PHASE R
	S	S	S	PHASE S
	T	T	T	PHASE T
	N	N	N	PHASE N
	SU	-	SU	UPS OUTPUT
	NU	-	NU	
	S	-	S	UPS INPUT
	N	-	N	
	U	U1	U1	MOTOR
	V	V1	V1	
	W	W1	W1	
	-	U2	U2	
	-	V2	V2	
	-	W2	W2	
	U1	U1	U1	
	U2	U2	U2	
	B+	B+	-	BRAKE +
	B-	B-	-	BRAKE -
	B1	-	-	V.V.V.F. RESISTOR
	B2	-	-	V.V.V.F. RESISTOR
	-	-	SL2	LOW PRESSURE SWITCH
	-	-	SL3	
	-	-	EV+	EMERGENCY VALVE
	-	-	EV-	
	-	-	VSU	UP DIRECTION VALVE SLOW SPEED
	-	-	VFU	UP DIRECTION VALVE FAST SPEED
	-	-	VSD	DOWN DIRECTION VALVE SLOW SPEED
	-	-	VFD	DOWN DIRECTION VALVE FAST SPEED
	-	-	+48	OVERLOAD
	-	-	53	
	-	-	H1	OIL THERMISTOR

	-	-	H2	

Table 5-1 X1 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X2	+24	+24	+24	COP POWER SUPPLY
	-24	-24	-24	
	105	105	105	DOWN ARROW
	106	106	106	UP ARROW
	A	A	A	INDICATION A
	B	B	B	INDICATION B
	C	C	C	INDICATION C
	SL4	SL4	SL4	CAR STOP
	SL5	SL5	SL5	
	SL6	SL6	SL6	CAR DOOR
	SL7	SL7	SL7	
	53	53	53	OVERLOAD
	+48	+48	+48	
	GND	GND	GND	GROUND

Table 5-2 X2 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X3	ZA	ZA	ZA	ZONE A
	ZAC	ZAC	ZAC	COMMON ZONE A
	ZB	ZB	ZB	ZONE B
	ZBC	ZBC	ZBC	COMMON ZONE B
	SU	SU	SU	STATION UP
	SD	SD	SD	STATION DOWN
	CS	CS	CS	STATION COMMON
	PU	PU	PU	PRE – LIMIT UP
	PD	PD	PD	PRE – LIMIT DOWN
	+48	+48	+48	PRE-LIMIT COMMON

Table 5-3 X3 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X4	C1	C1	C1	CAR CALL 1
	C2	C2	C2	CAR CALL 2
	C3	C3	C3	CAR CALL 3
	C4	C4	C4	CAR CALL 4
	C5	C5	C5	CAR CALL 5
	C6	C6	C6	CAR CALL 6
	C7	C7	C7	CAR CALL 7
	C8	C8	C8	CAR CALL 8

	COM	COM	COM	CAR CALL COMMON

Table 5-4 X4 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X5	+12	+12	+12	+12 VDC
	-12	-12	-12	-12 VDC
	VL	VL	VL	EMERGENCY LIGHTS
	LV	LV	LV	TEMPORARY CAR LIGHTS
	LCL	LCL	LCL	PERMANENT CAR LIGHTS
	NL	NL	NL	CAR LIGHTS NEUTRAL
	122	122	122	OVERLOAD INDICATION
	107	107	107	GONG
	-24	-24	-24	- 24 VDC
	V01	V01	V01	SPEAKER
	V02	V02	V02	SPEAKER
	121	121	121	ALARM FILTERING
	TF1	TF1	TF1	TELEPHONE LINE
	TF2	TF2	TF2	TELEPHONE LINE
	GND	GND	GND	GROUND

Table 5-5 X5 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X6	69C	69C	69C	REVISION / NORMAL
	70	70	70	INSPECTION UP SIGNAL
	71	71	71	INSPECTION DOWN SIGNAL
	ND	ND	ND	DOOR NEUTRAL
	LD	LD	LD	DOOR LINE
	COM	COM	COM	DOOR SIGNAL COMMON 1
	CLS	CLS	CLS	DOOR CLOSE SIGNAL 1
	OPN	OPN	OPN	DOOR OPEN SIGNAL 1
	MA+	MA+	MA+	CAM 1 (+)
	MA-	MA-	MA-	CAM 1 (-)
	99	99	99	DOOR OBSTRUCTION 1
	+48	+48	+48	+48 VDC
	59	59	59	PHOTOCELL
	58	58	58	DOOR CLOSE BUTTON
	57	57	57	DOOR OPEN BUTTON
	COM2	COM2	COM2	DOOR SIGNAL COMMON 2

	CLS2	CLS2	CLS2	DOOR CLOSE SIGNAL 2
	OPN2	OPN2	OPN2	DOOR OPEN SIGNAL 2
	MB+	MB+	MB+	CAM 2 (+)
	MB-	MB-	MB-	CAM 2 (-)
	98	98	98	DOOR OBSTRUCTION 2
	+48	+48	+48	+48 VDC
	-	-	-	
	GND	GND	GND	GROUND

Table 5-6 X6 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X7	L1	L1	L1	LANDING CALL 1
	L2	L2	L2	LANDING CALL 2
	L3	L3	L3	LANDING CALL 3
	L4	L4	L4	LANDING CALL 4
	L5	L5	L5	LANDING CALL 5
	L6	L6	L6	LANDING CALL 6
	L7	L7	L7	LANDING CALL 7
	L8	L8	L8	LANDING CALL 8
	COM	COM	COM	LANDING CALL COMMON

Table 5-7 X7 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION	
X8	105	105	105	DOWN ARROW	
	106	106	106	UP ARROW	
	A	A	A	INDICATION A	
	B	B	B	INDICATION B	
	C	C	C	INDICATION C	
	53	53	53	OVERLOAD	
	+48	+48	+48	+48 VDC	
	+24	+24	+24	+24 VDC	
	-24	-24	-24	- 24 VDC	
	SL0	SL0	SL0	FINAL SWITCH UP	
	SL1	SL1	SL1		FINAL SWITCH DOWN
	SL2	SL2	SL2		
	SL3	SL3	SL3	SHAFT STOP	
	SL4	SL4	SL4		
	SL5	SL5	SL5		

	SL6	SL6	SL6	MANUAL LANDING DOOR CONTACT
	SL7	SL7	SL7	LOCKS
	SL8	SL8	SL8	
	GND	GND	GND	GROUND

Table 5-8 X8 Terminal Block Description

TERMINAL BLOCK	V.V.V.F.	2 SPEED TRACTION	HYDRAULIC	DESCRIPTION
X13	LSL	LSL	LSL	SHAFT LIGHTS 220VAC
	NSL	NSL	NSL	SHAFT LIGHTS NEUTRAL
	SLB	SLB	SLB	SHAFT LIGHTS LATCH RELAY BUTTON
	SLB	SLB	SLB	SHAFT LIGHTS LATCH RELAY BUTTON

Table 5-9 X13 Terminal Block Description

5.4 Cable Color Coding

The coding of the cables has been done according to the I.E.C. (International Electrotechnical Commission) directive and is shown in the table below.

COLOR	SYMBOL	VOLTAGE	OPERATION
RED	RD	220 VAC, +48 VDC, 38 VAC	PHASE R, SAFETY CIRCUIT +48VDC
BROWN	BN	220 VAC	PHASE S
BLACK	BK	220 VAC,	PHASE T
BLUE	BU	ΟΥΔΕΤΕΡΟΣ	NEUTRAL
PINK	PK	12 VDC	12 VDC, BATTERY
GREY	GY	– 12 VDC, -24 VDC, -48 VDC, -110 VDC	-
YELLOW	YE	-24 VDC	CAR CALLS
PURPLE	VT	+110 VDC, ΣΗΜΑΤΑ V.V.V.F	V.V.V.F SIGNALS
WHITE	WH	12VACN, 20VACN, 38 VACN	-
ORANGE	OG	20VAC, 24 VDC,	POWER SUPPLY 20VAC, 24 VDC
GREEN	GN	-24 VDC	FLOOR CALLS
YELLOW - GREEN	GNYE	GROUND	GROUND

Table 5-10 Color Coding

5.5 Component naming legend

The naming of the components has been done according to I.E.C. (International Electrotechnical Commission) directive and is as follows:

C Capacitors
D Diodes
F Fuses, Thermo magnetic switches, Thermal switches
G Generators, Batteries
H Optical and Audio Indicators
J Connectors
K Power relays
L Coils
M Motors, Fans
P Power sockets
Q Quadruple circuit-breaker, circuit-breaker
R Relays, Resistors
S Sensors, switches
T Transformers
X Terminal Blocks
Y brakes, electro valves, electromagnets

NAME	DESCRIPTION
Q1	Quadruple Circuit-Breaker
Q2	Ground Fault Current circuit-breaker
Q3	Transformer circuit-breaker
Q4	Brake circuit-breaker
Q5	Car Lights circuit breaker
Q6	Shaft Lights circuit-breaker
Q7	Power Socket circuit-breaker
Q8	Doors circuit-breaker
Q9	UPS circuit-breaker
Q10	Oil Thermistor circuit-breaker
K1	Motion Power Relay / Pump On Relay
K2	Motion Power Relay / Delta Power Relay
K3	Brake Power Relay / Star Power Relay
KM	Mains Supervisor Relay
PSP	Phase Sequence Relay
T1	Transformer
LRSB	Lamda Relay System Base Module
LRSH	Lamda Relay System Hydraulic Module
L-CM1	Cam Drive Module
L-DR1	Automatic Door Drive Module
L-RK 1	Shaft Lights Latch Relay Module
BRAKE RELEASE MODULE	Brake Release Module, Safety Gear Short Circuit Button and Overspeed Governor Testing
PHOENIX	Lamda Lift Controller

YASKAWA L1000	V.V.V.F.
CARLO CAVAZZI MODULE	Relevelling Module
M7	Fan
H3	Control Cabinet Light
P1	Power socket
F	Thermal Relay
X	Terminal Blocks

Table 5-11 Component Naming

5.6 Connecting the Control Cabinet

Step 1: *Connect to the mains, all three phases, neutral and ground (Figure 5-1).* If there is no neutral then you should short the connection with the ground. Open the switch Q1 and check whether the sequence of the phases is correct on the phase sequence relay (PSP). In order for the phase sequence to be correct both LEDS should be turned on, on the PSP. If it seems to be incorrect then change the connection between two phases. At DIN rail terminals R and N you should connect the single phase supply for the lighting. When using a UPS (Universal Power Supply) device which is required in the case of a V.V.V.F. control cabinet for cabin and door rescue and in the case of a Hydraulic control cabinet for automatic door rescue, you should perform the following connections. Connect the UPS inputs to DIN rail terminals N and S, and connect the UPS outputs at DIN rail terminals NU and SU.

Step 2: *Connect the Motor*.

If the motor is installed along with a V.V.V.F. then you should follow the connection scheme shown in figure 5-1. At DIN rail terminals U, V, W, we connect the motor. At terminals Θ1 and Θ2 we connect the motor thermistor. At terminals B+ and B- we connect the motor brake and finally at terminals B1 and B2 we connect the V.V.V.F. resistor.

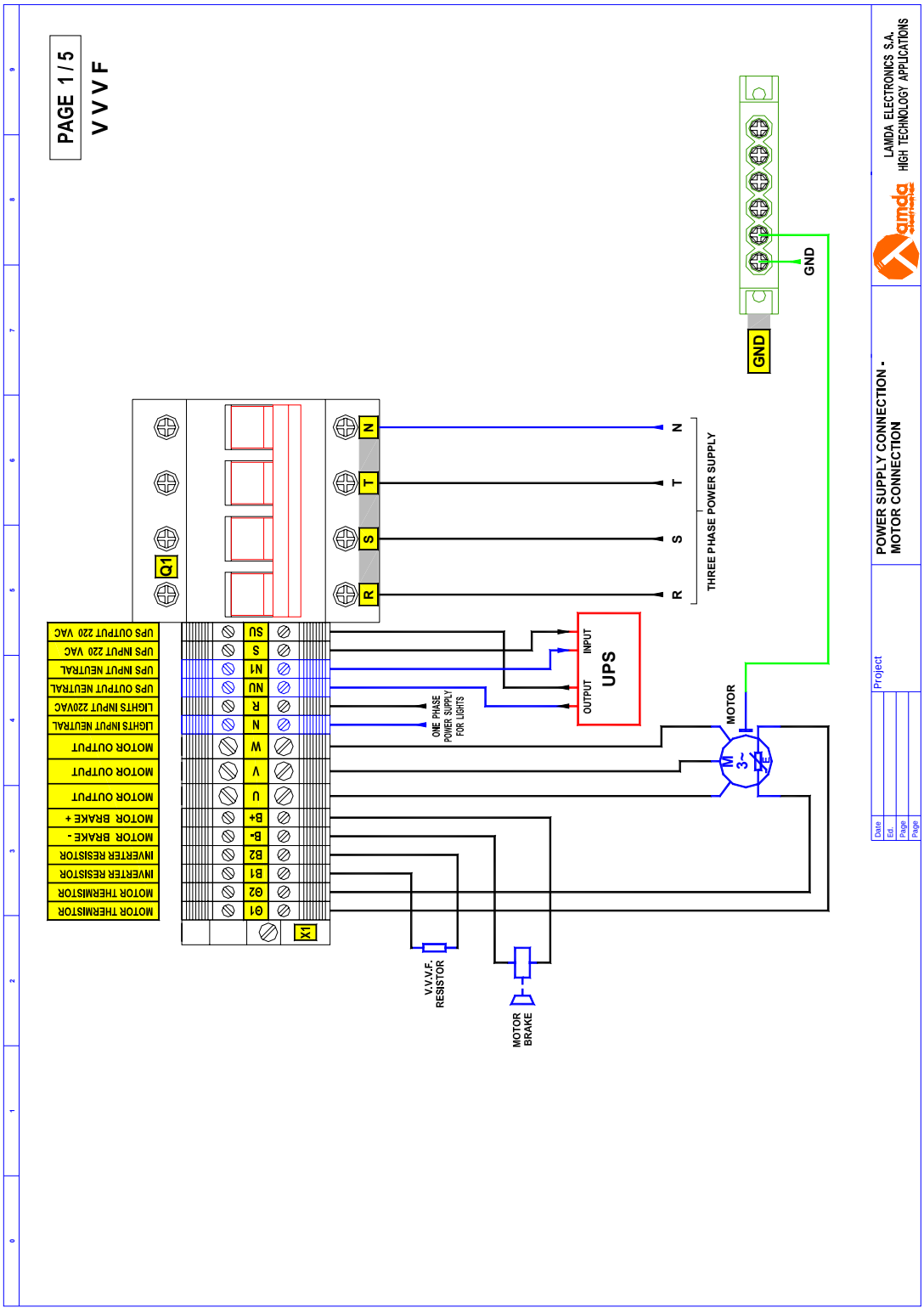


Figure 5-2 Terminal Block X1 Connections for V.V.V.F. Lift Control Cabinet

In case the motor is installed on a Hydraulic lift, we have two discrete cases.

Case 1: Delta Drive. In this case the motor is connected as shown in figure 5-3. At terminals U, V, W we connect the motor while at terminals Θ1 and Θ2 the motor thermistor.

Case 2: Star-Delta Drive. In this case the motor is connected as shown in figure 5-4. At terminals U1, V1, W1, of Terminal Block **X1** we connect the respective U1, V1, W1, terminals of the motor while at terminals U2, V2, W2, of Terminal Block **X1** we connect the respective U2, V2, W2, terminals of the motor. The motor thermistor is connected at terminals Θ1 and Θ2.

Then, we must connect the valves. Follow the directions of either figure 5-3 or figure 5-4 for the connection of the valves. At terminals H1 and H2 connect the oil thermistor.

If the motor is of a traction 2-Speed lift then make connections as shown in figure 5-5. At terminals U1, V1, W1, of Terminal Block **X1** we connect the respective U1, V1, W1, terminals of the motor του κινητήρα while at terminals U2, V2, W2, of Terminal Block **X1** we connect the respective U2, V2, W2, terminals of the motor. The motor thermistor is connected at terminals Θ1 and Θ2. At terminals B+ and B- you connect the motor's brake.

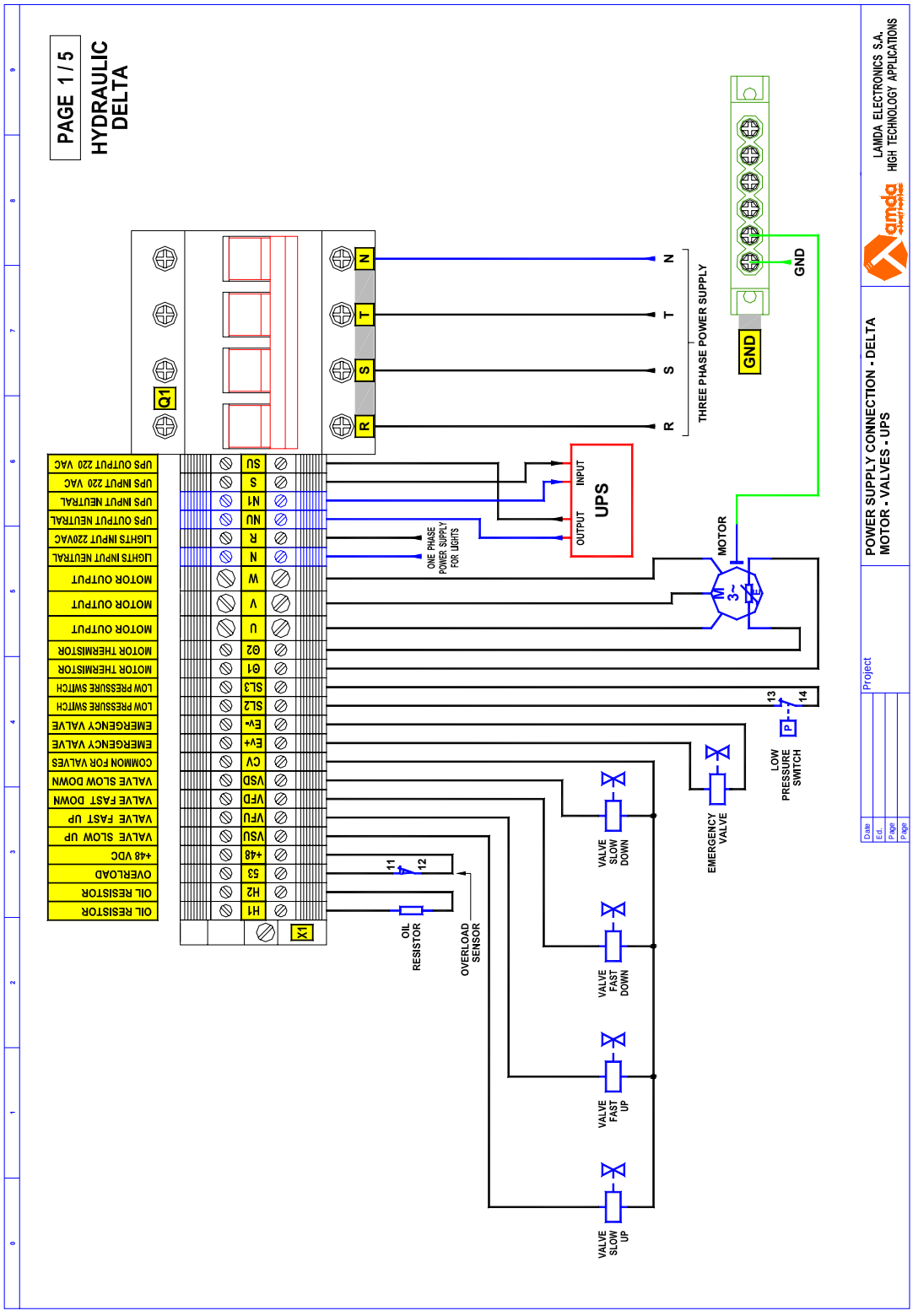


Figure 5-3 Terminal Block X1 Connections for Hydraulic Lift Control Cabinet Δ

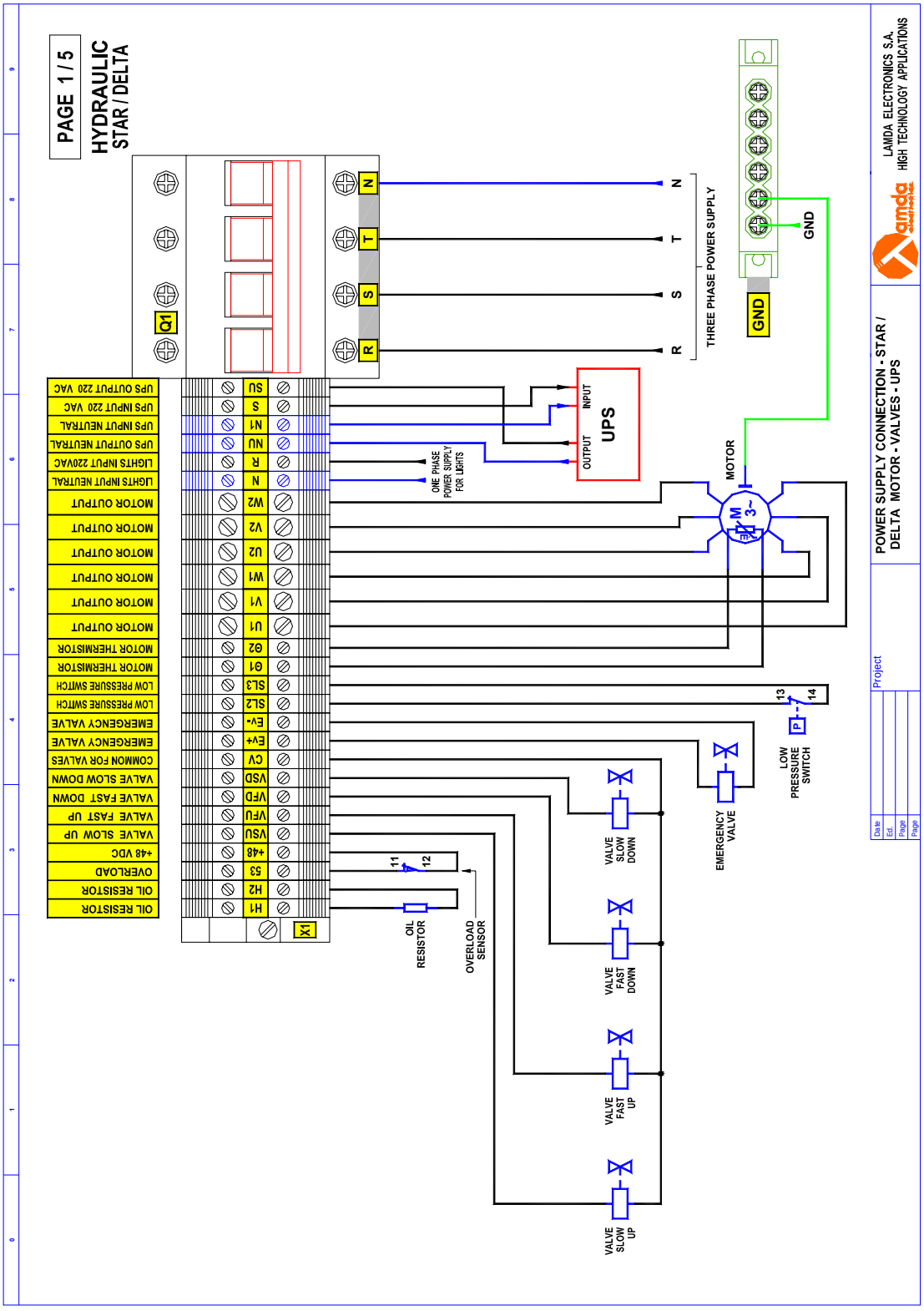


Figure 5-4 Terminal Block X1 Connections for Hydraulic Lift Control Cabinet Y – Δ

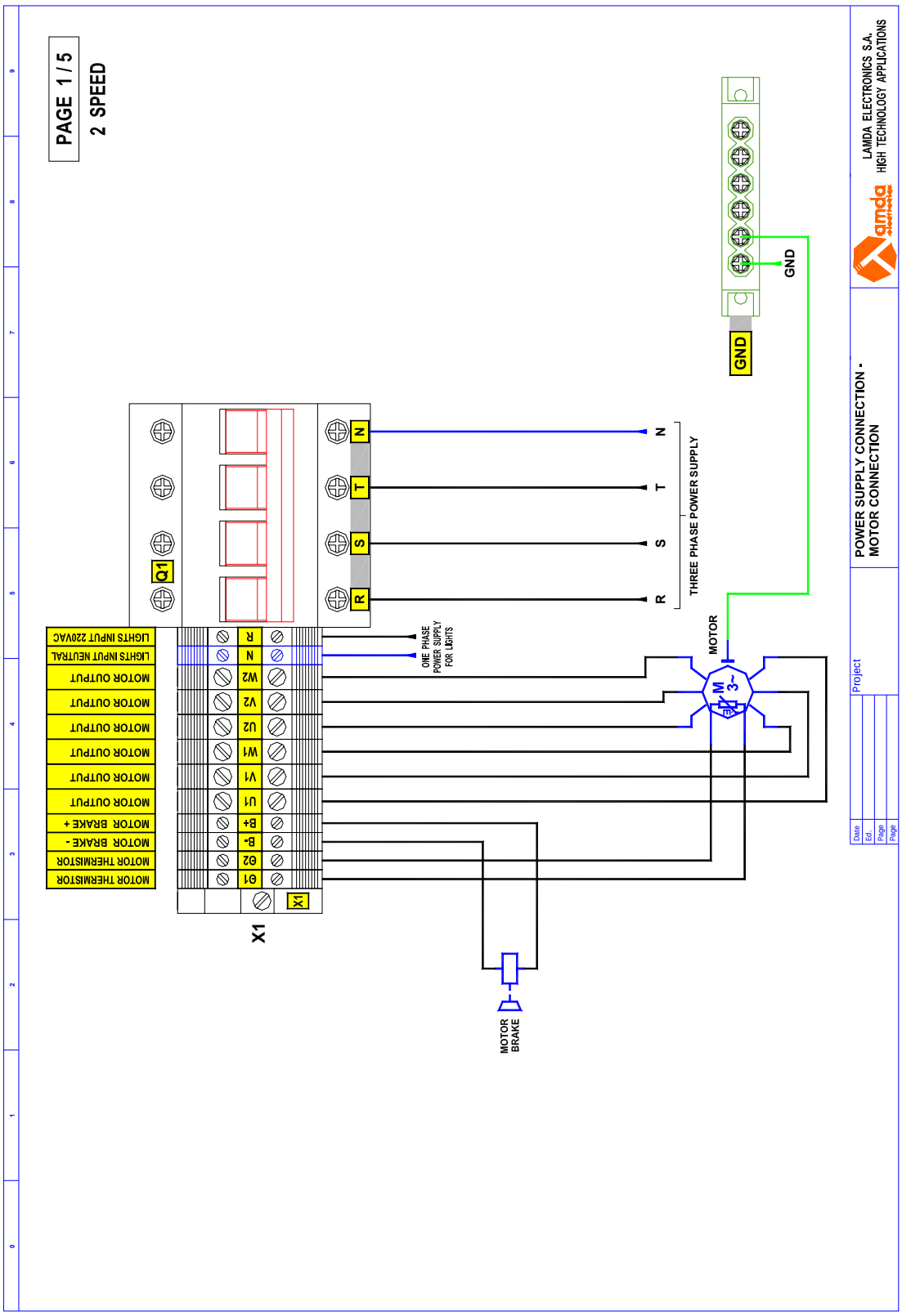
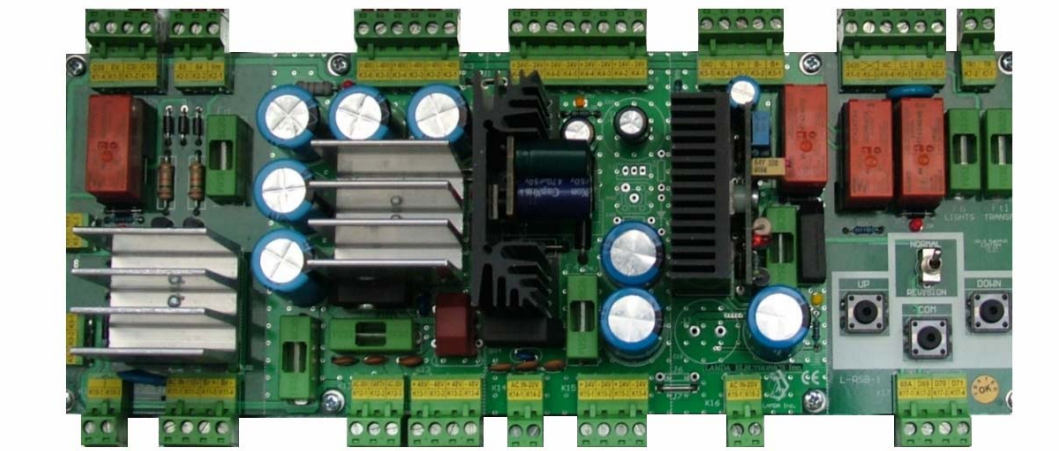


Figure 5-5 Terminal Block X1 Connections for Traction 2-Speed Lift Control Cabinet

Step 3: *Enter Inspection mode.*

The switch on the LRS-B (picture 5-4) should be turned on the REVISION position. By pressing COM and UP buttons we perform upward revision. By pressing COM and DOWN buttons we perform downward revision. At this stage we check the turning direction of the motor and its correct connections. If the turning direction is not the desired one then we change the connection between two phases.



Picture 5-4 L.R.S.B – 1

Step 4: *Connect the magnetic switches and the maintenance box.*

At this stage you should also connect the car emergency stop. The proper connection set is shown in figure 5.9.

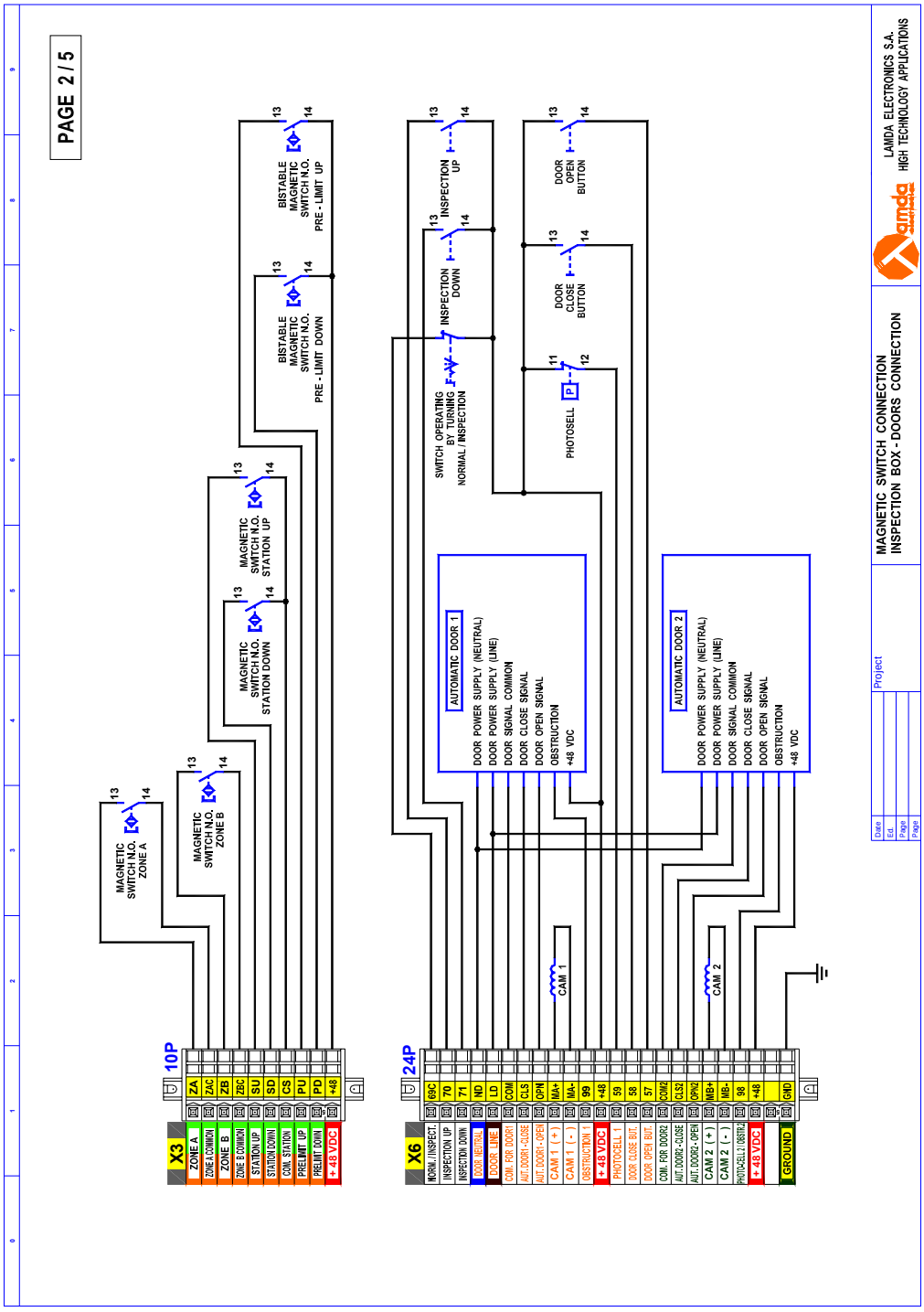


Figure 5-6 Terminal Block X3 and X6 Connections

While performing the revision process we could install the floor selector. The correct positioning of the magnets is shown in the figure below.

HYDRAULIC LIFT CASE USING RECTANGULAR BISTABLE

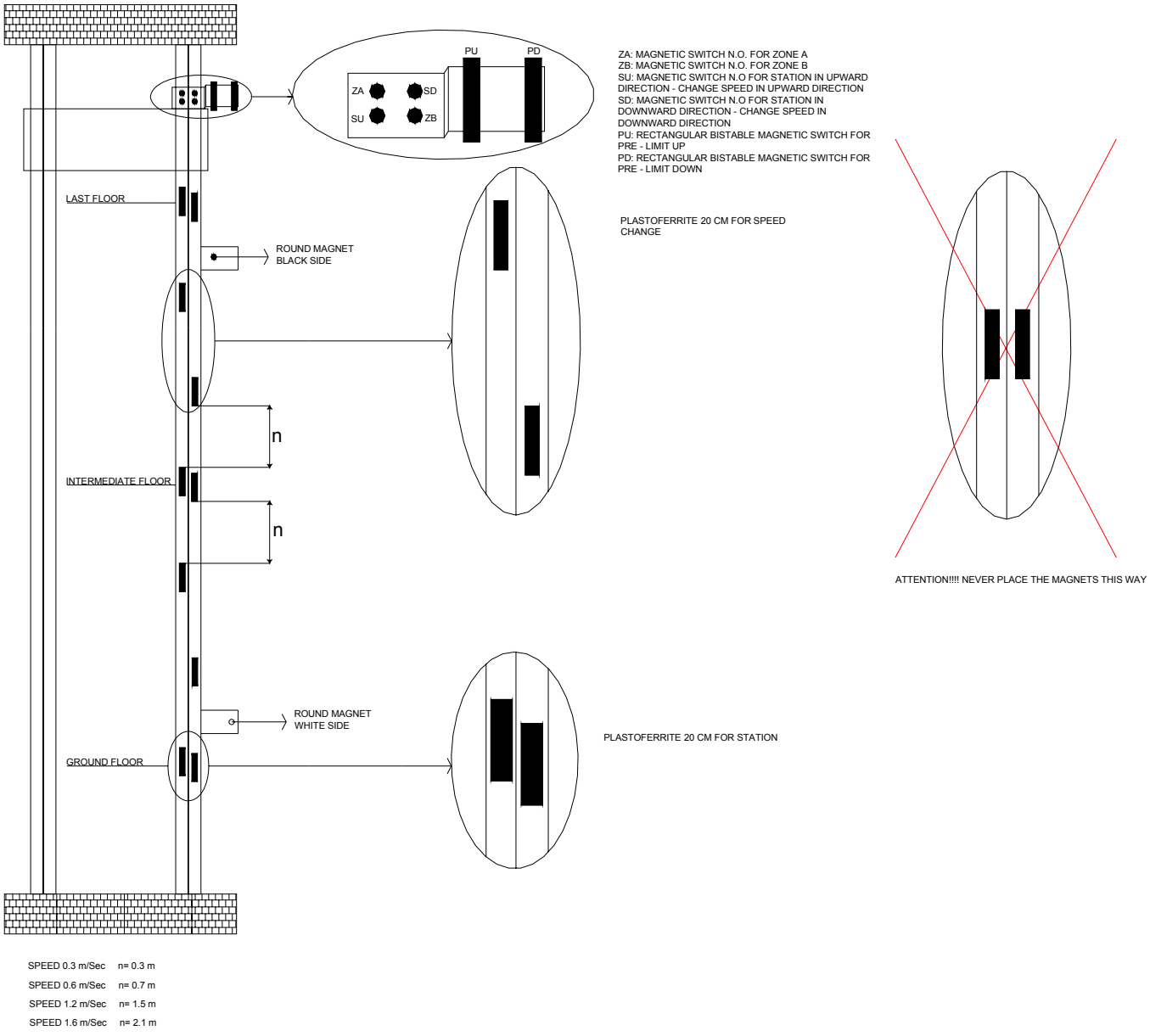

PU
PD
ZA
SD
SU
ZB
ZA: MAGNETIC SWITCH N.O. FOR ZONE A
ZB: MAGNETIC SWITCH N.O. FOR ZONE B
SU: MAGNETIC SWITCH N.O FOR STATION IN UPWARD DIRECTION - CHANGE SPEED IN UPWARD DIRECTION
SD: MAGNETIC SWITCH N.O FOR STATION IN DOWNWARD DIRECTION - CHANGE SPEED IN DOWNWARD DIRECTION
PU: RECTANGULAR BISTABLE MAGNETIC SWITCH FOR PRE - LIMIT UP
PD: RECTANGULAR BISTABLE MAGNETIC SWITCH FOR PRE - LIMIT DOWN
LAST FLOOR
ROUND MAGNET BLACK SIDE
PLASTOFERRITE 20 CM FOR SPEED CHANGE
n
INTERMEDIATE FLOOR
n
ROUND MAGNET WHITE SIDE
PLASTOFERRITE 20 CM FOR STATION
GROUND FLOOR
ATTENTION!!!! NEVER PLACE THE MAGNETS THIS WAY
SPEED 0.3 m/Sec n= 0.3 m
SPEED 0.6 m/Sec n= 0.7 m
SPEED 1.2 m/Sec n= 1.5 m
SPEED 1.6 m/Sec n= 2.1 m

Figure 5-7 Hydraulic Lift Floor Selector

TRACTION LIFT CASE USING RECTANGULAR BISTABLE

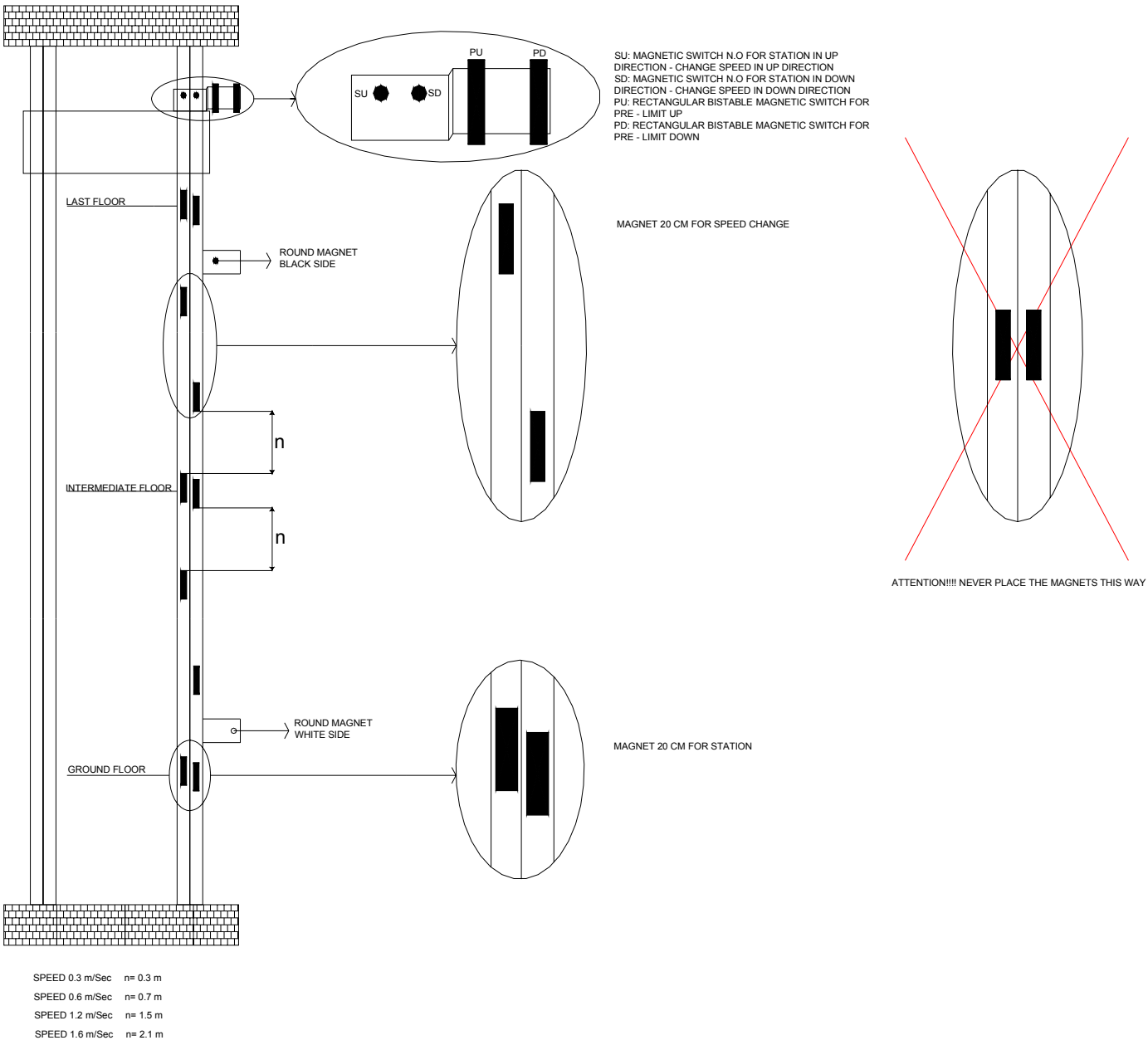

PU
PD
SU
SD
SU: MAGNETIC SWITCH N.O FOR STATION IN UP DIRECTION - CHANGE SPEED IN UP DIRECTION
SD: MAGNETIC SWITCH N.O FOR STATION IN DOWN DIRECTION - CHANGE SPEED IN DOWN DIRECTION
PU: RECTANGULAR BISTABLE MAGNETIC SWITCH FOR PRE - LIMIT UP
PD: RECTANGULAR BISTABLE MAGNETIC SWITCH FOR PRE - LIMIT DOWN
LAST FLOOR
ROUND MAGNET BLACK SIDE
MAGNET 20 CM FOR SPEED CHANGE
n
INTERMEDIATE FLOOR
n
ROUND MAGNET WHITE SIDE
GROUND FLOOR
MAGNET 20 CM FOR STATION
ATTENTION!!!! NEVER PLACE THE MAGNETS THIS WAY
SPEED 0.3 m/Sec n= 0.3 m
SPEED 0.6 m/Sec n= 0.7 m
SPEED 1.2 m/Sec n= 1.5 m
SPEED 1.6 m/Sec n= 2.1 m

Figure 5-8 Traction Lift Floor Selector

HYDRAULIC LIFT CASE USING PENCIL BISTABLE

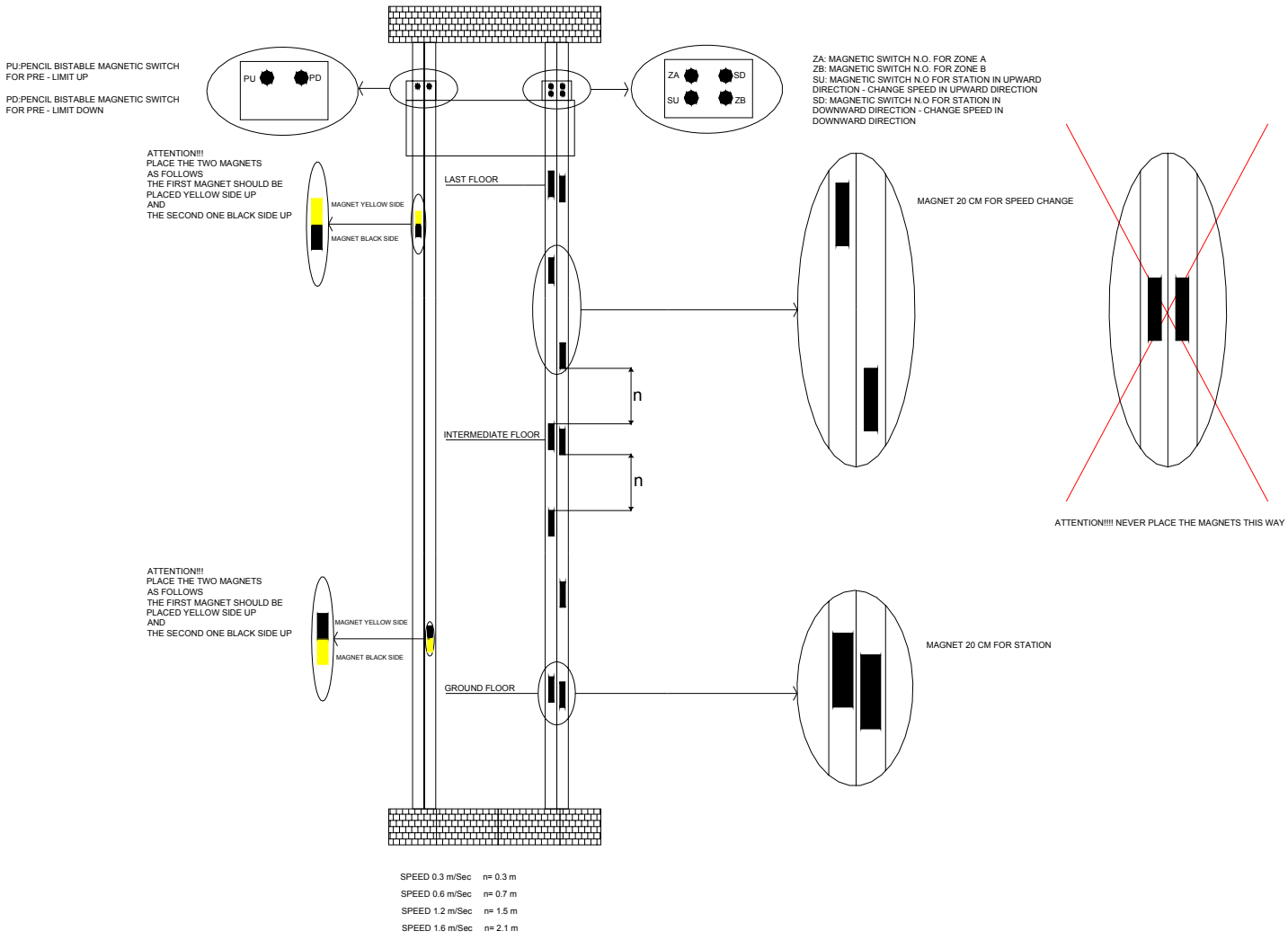

PU:PENCIL BISTABLE MAGNETIC SWITCH FOR PRE - LIMIT UP
PD:PENCIL BISTABLE MAGNETIC SWITCH FOR PRE - LIMIT DOWN
PU
PD
ZA
SD
SU
ZB
ZA: MAGNETIC SWITCH N.O. FOR ZONE A
ZB: MAGNETIC SWITCH N.O. FOR ZONE B
SU: MAGNETIC SWITCH N.O FOR STATION IN UPWARD DIRECTION - CHANGE SPEED IN UPWARD DIRECTION
SD: MAGNETIC SWITCH N.O FOR STATION IN DOWNWARD DIRECTION - CHANGE SPEED IN DOWNWARD DIRECTION
ATTENTION!!! PLACE THE TWO MAGNETS AS FOLLOWS THE FIRST MAGNET SHOULD BE PLACED YELLOW SIDE UP AND THE SECOND ONE BLACK SIDE UP
MAGNET YELLOW SIDE
MAGNET BLACK SIDE
LAST FLOOR
MAGNET 20 CM FOR SPEED CHANGE
n
INTERMEDIATE FLOOR
n
ATTENTION!!! NEVER PLACE THE MAGNETS THIS WAY
ATTENTION!!! PLACE THE TWO MAGNETS AS FOLLOWS THE FIRST MAGNET SHOULD BE PLACED YELLOW SIDE UP AND THE SECOND ONE BLACK SIDE UP
MAGNET YELLOW SIDE
MAGNET BLACK SIDE
GROUND FLOOR
MAGNET 20 CM FOR STATION
SPEED 0.3 m/Sec n= 0.3 m
SPEED 0.6 m/Sec n= 0.7 m
SPEED 1.2 m/Sec n= 1.5 m
SPEED 1.6 m/Sec n= 2.1 m

Figure 5-9 Hydraulic Lift Floor Selector using pencil bistable

TRACTION LIFT CASE USING PENCIL BISTABLE

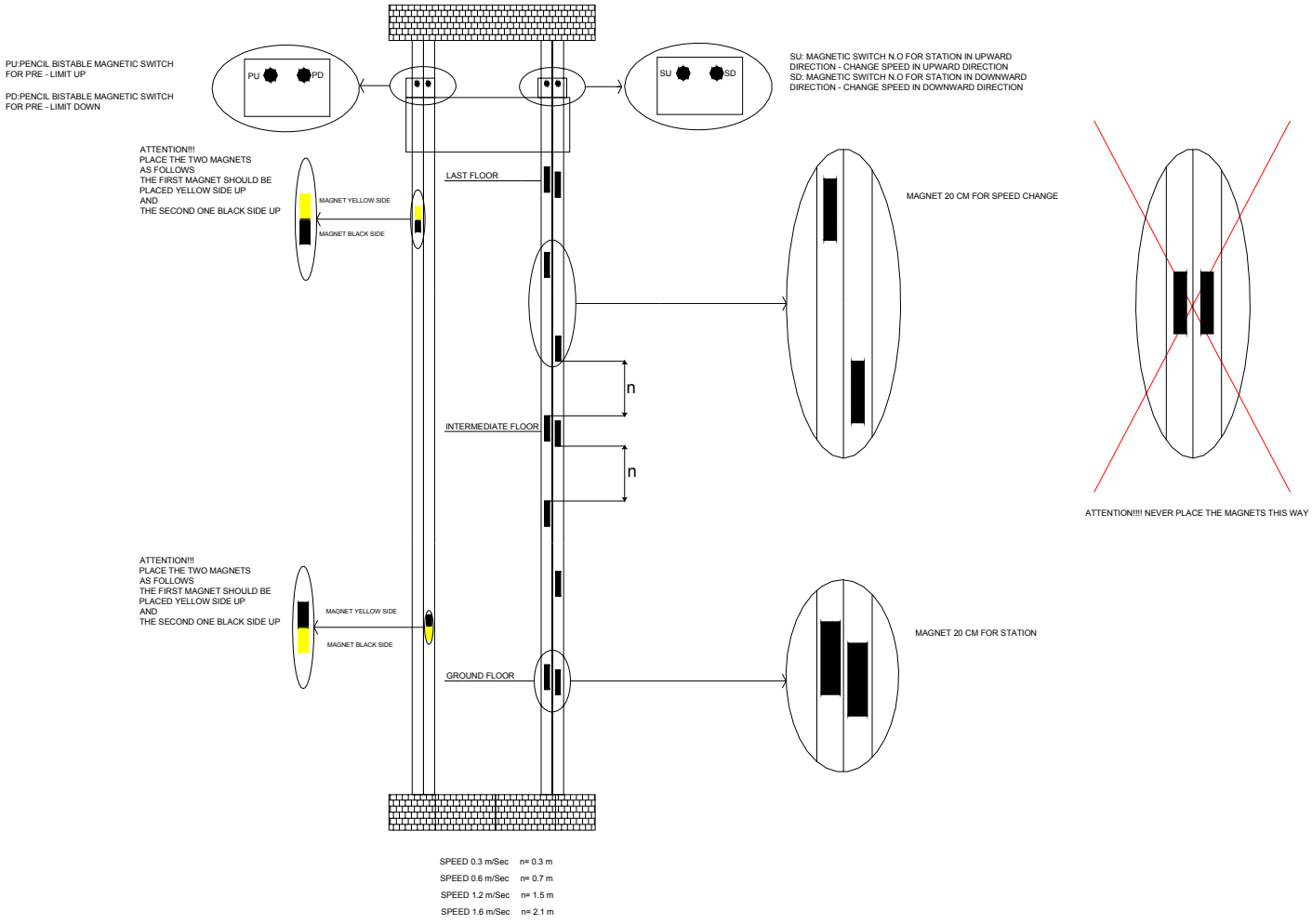

PU:PENCIL BISTABLE MAGNETIC SWITCH
FOR PRE - LIMIT UP
PD:PENCIL BISTABLE MAGNETIC SWITCH
FOR PRE - LIMIT DOWN
PU
PD
SU
SD
SU: MAGNETIC SWITCH N.O FOR STATION IN UPWARD DIRECTION - CHANGE SPEED IN UPWARD DIRECTION
SD: MAGNETIC SWITCH N.O FOR STATION IN DOWNWARD DIRECTION - CHANGE SPEED IN DOWNWARD DIRECTION
ATTENTION!!!
PLACE THE TWO MAGNETS
AS FOLLOWS
THE FIRST MAGNET SHOULD BE
PLACED YELLOW SIDE UP
AND
THE SECOND ONE BLACK SIDE UP
MAGNET YELLOW SIDE
MAGNET BLACK SIDE
LAST FLOOR
MAGNET 20 CM FOR SPEED CHANGE
ATTENTION!!! NEVER PLACE THE MAGNETS THIS WAY
n
INTERMEDIATE FLOOR
n
ATTENTION!!!
PLACE THE TWO MAGNETS
AS FOLLOWS
THE FIRST MAGNET SHOULD BE
PLACED YELLOW SIDE UP
AND
THE SECOND ONE BLACK SIDE UP
MAGNET YELLOW SIDE
MAGNET BLACK SIDE
GROUND FLOOR
MAGNET 20 CM FOR STATION
SPEED 0.3 m/Sec n= 0.3 m
SPEED 0.6 m/Sec n= 0.7 m
SPEED 1.2 m/Sec n= 1.5 m
SPEED 1.6 m/Sec n= 2.1 m

Figure 5-10 Traction Lift Floor Selector using pencil bistable

Step 5: Connect the safety circuit and the car doors. Connect the overload switch. Test the safety circuit connections. During inspection check the CAM and the door operation. If everything works well then turn the inspection switch on the car top control box to "OPERATION" also turn the switch on the LRS-B module (picture 5-4) to "NORMAL". The car will move downwards (if it is above the pre-limit) and it will stop at the first floor. If the car is already at the first floor (and below the pre-limit) then it will move upwards and it will stop at the second floor. If there are automatic doors present then the control cabinet will first open and then will close the doors. If there are bus doors present then they will open and stay open. The above mentioned procedure is called RESET.

Step 6: Connect Car and Floor calls, indicators and the rest of the signals (lights, gong, emergency lights etc). Follow the instructions in figures 5-9, 5-10 και 5-11.

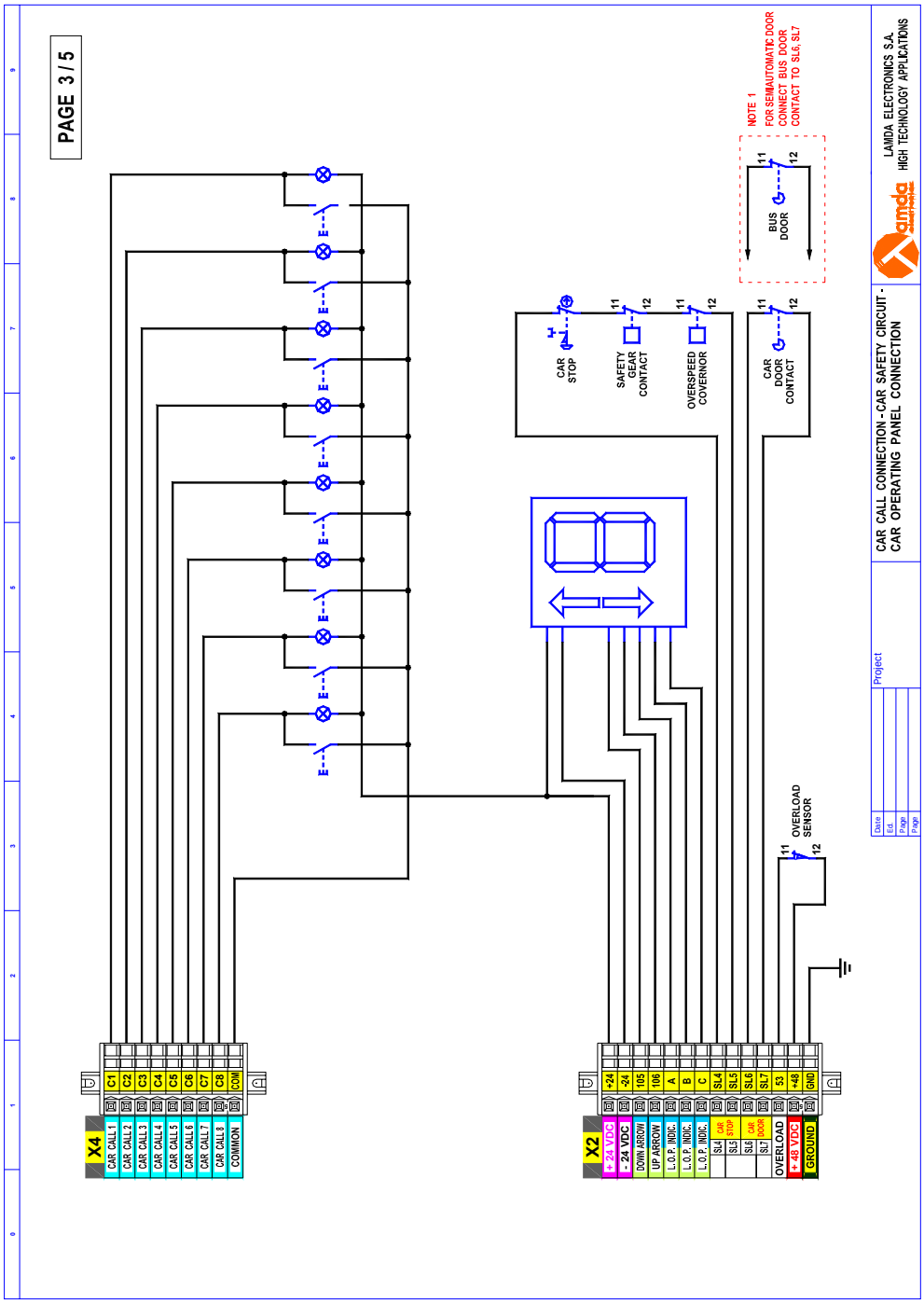


Figure 5-11 Terminal Block X4 and X2 Connections

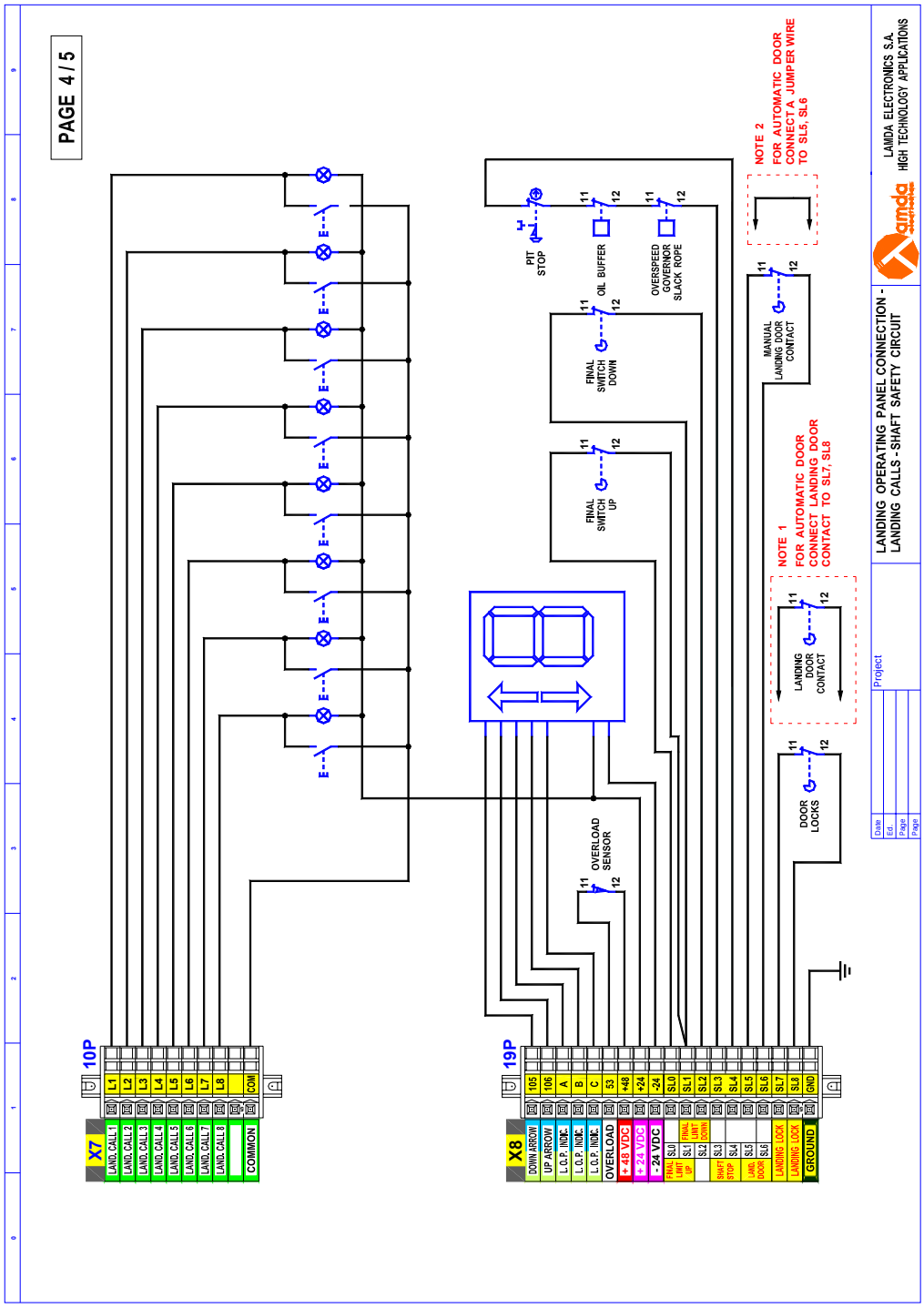


Figure 5-12 Terminal Block X7 and X8 Connections

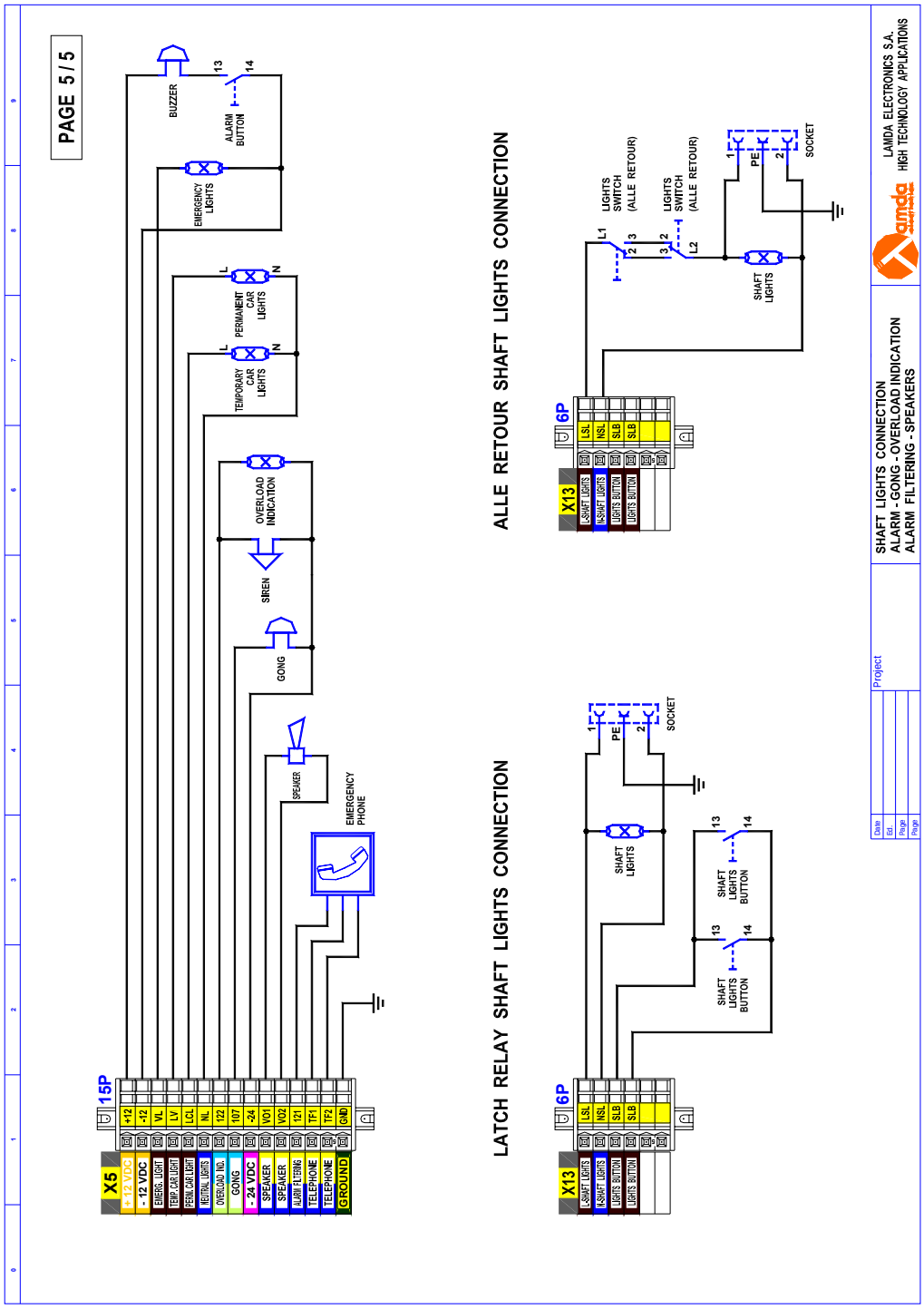


Figure 5-13 Terminal Block X5 and X13 Connections

5.7 Pre – wiring

5.7.1 Car pre – wiring

The internal connections as well the signal connections are shown in wiring diagrams 5-14, 5-15, 5-16. The wiring diagram 5-14 refers to the case of using up to 2 bus doors.

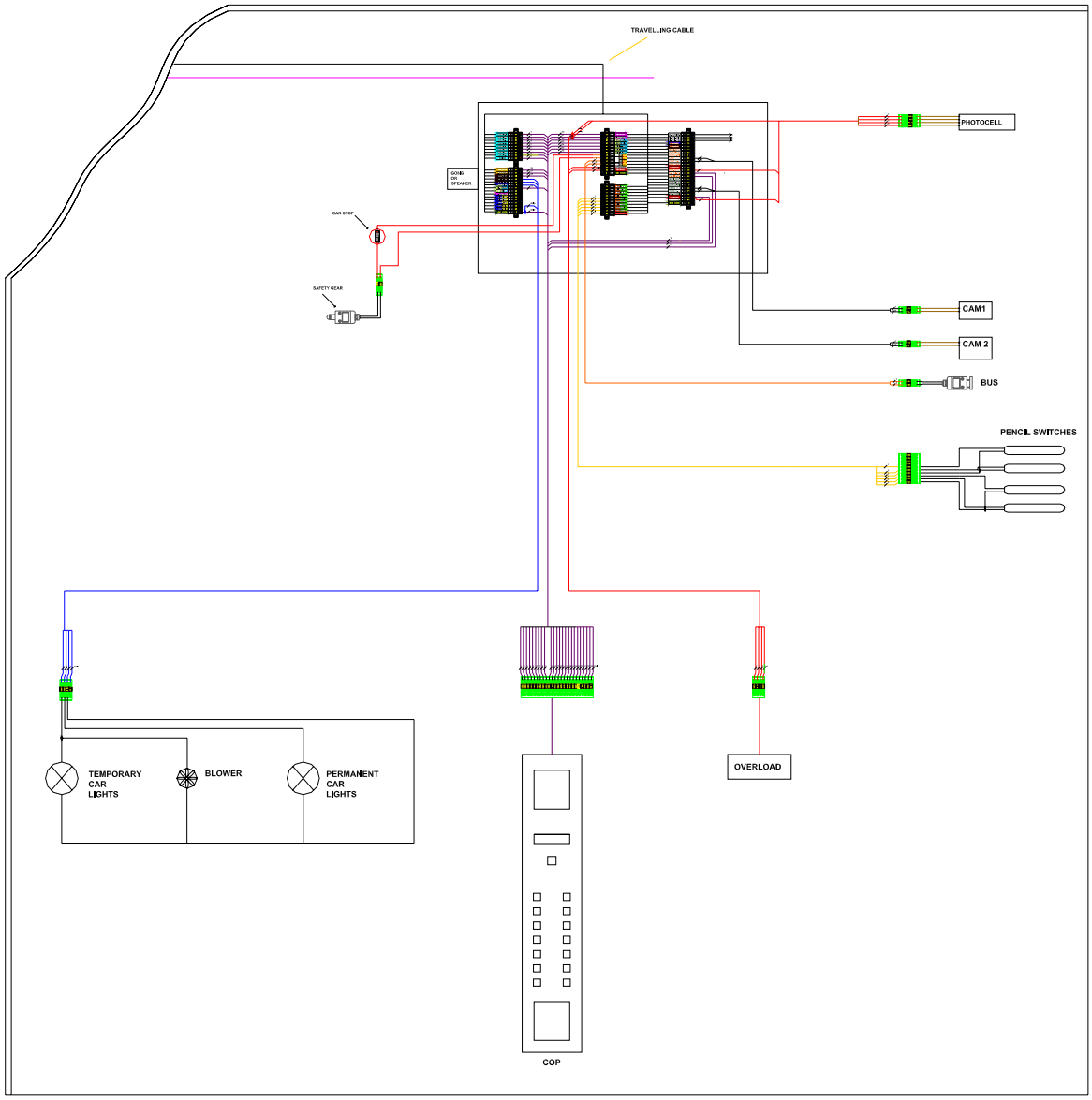


Figure 5-14 Car pre – wiring up to 2 bus doors

The wiring diagram 5-15 refers to the case of using up to 2 automatic doors.

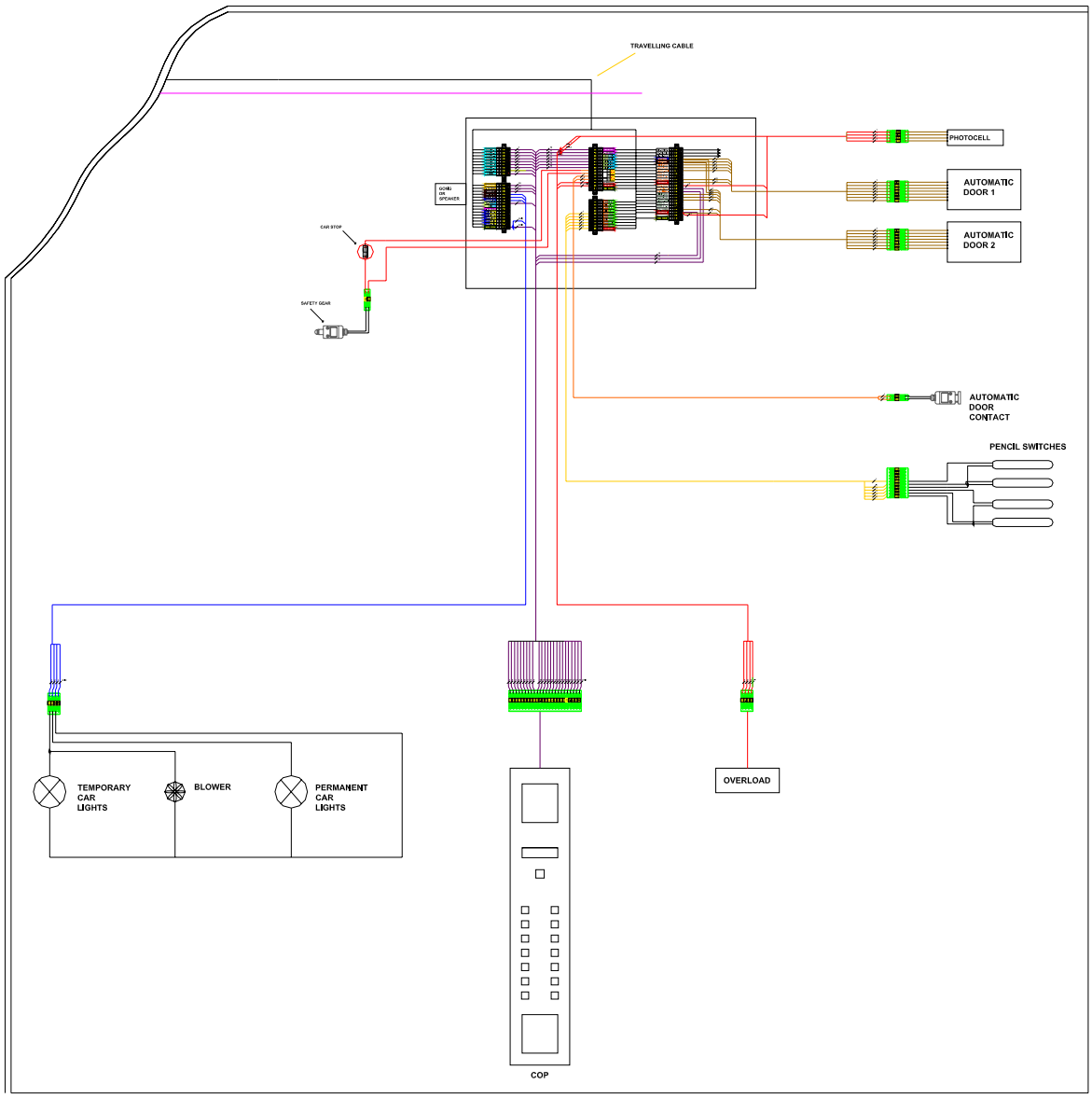


Figure 5-15 Car pre – wiring connection up to 2 automatic doors

The wiring diagram 5-16 presents the internal connections of the car top control box.

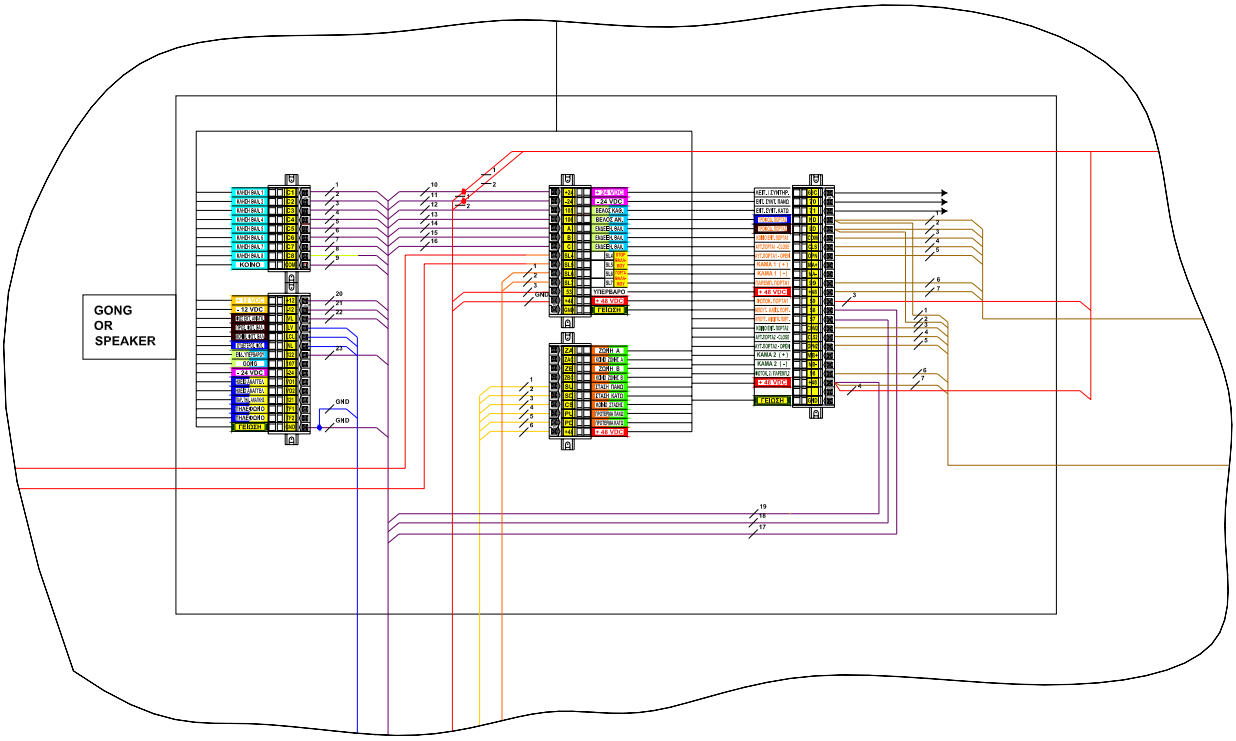


Figure 5-16 Car top control box internal wiring

5.7.2 Shaft pre - wiring

Diomedes is using dedicated pre-wired shaft units in order to fulfill the EN 81.1 – 2 norms. This pre – wiring technique allows the installer to finish the electrical installation quick and easy.

During the installation the technician should follow the steps below.

1. Install plastic or metal trunk (EN 81.72) in the shaft.
2. Place the loom inside the trunk. From the one side of the loom there are three male terminal blocks. Connect the terminal to X7, X8 and X13 of the control cabinet. Tie the ends of the loom to the trunk.
3. Place all the shaft components into the shaft (final switches, lamps etc). Connect the components using the connectors provided by Lamda Electronics. Follow the below wiring diagrams according to your installation.

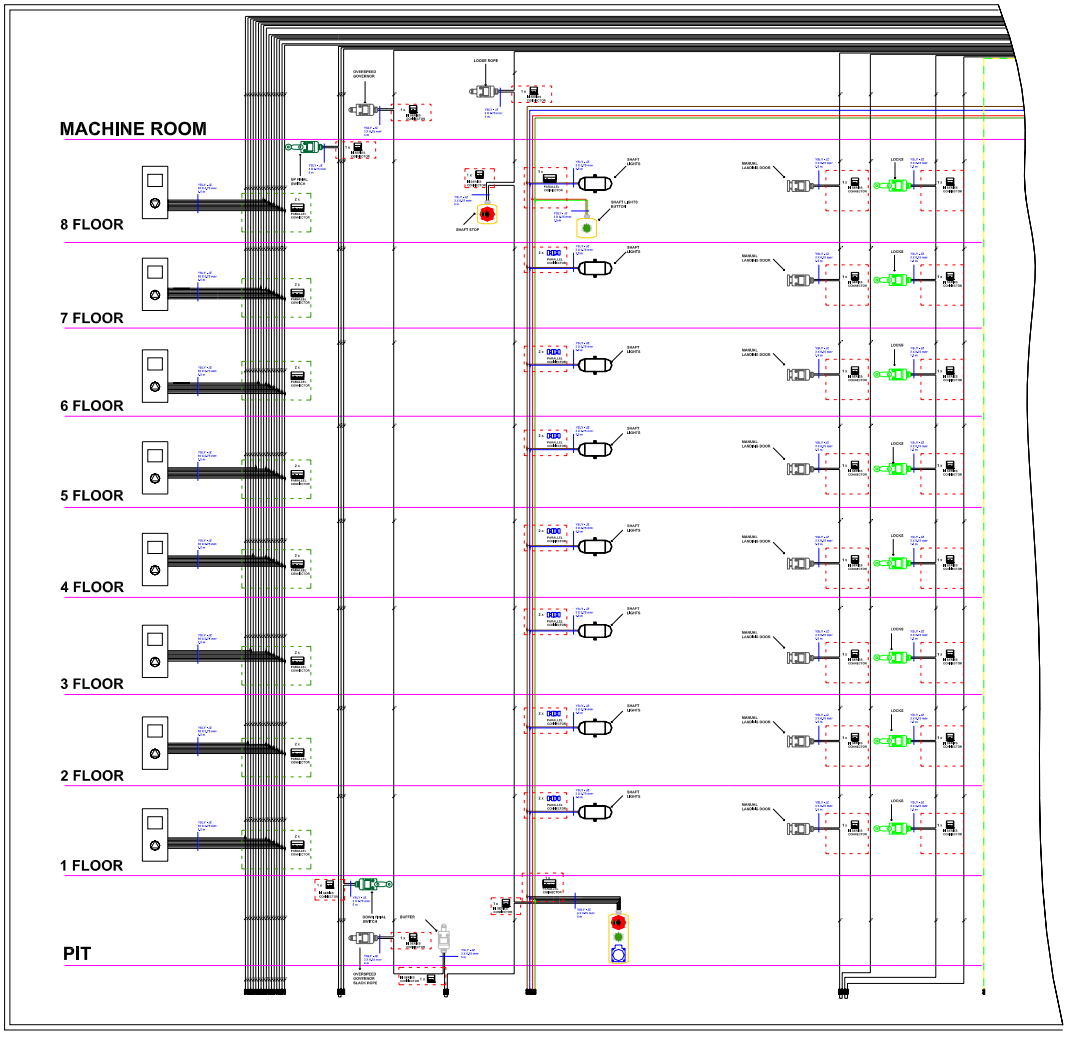


Figure 5-17 Loom connections down collective – bus doors

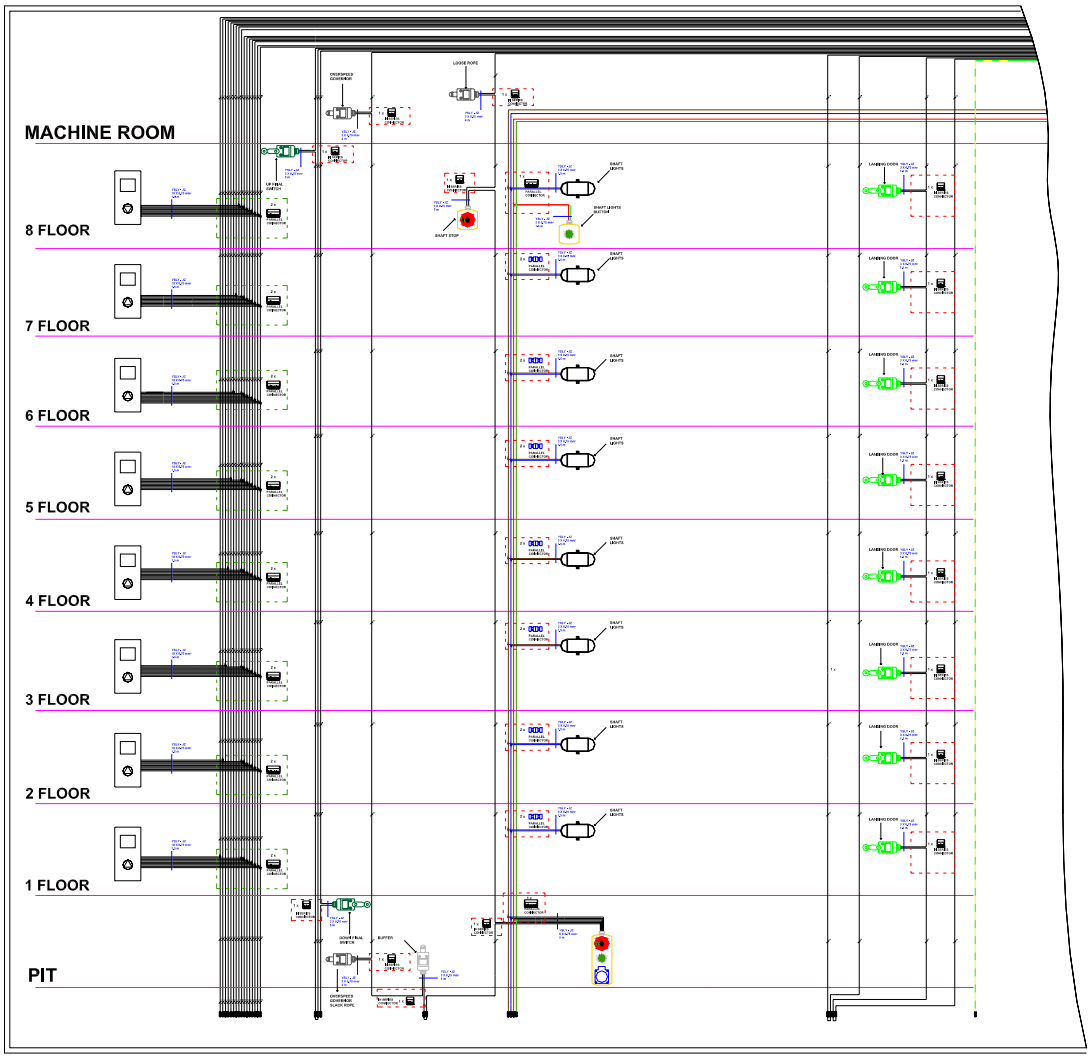


Figure 5-18 Loom connections down collective – automatic doors

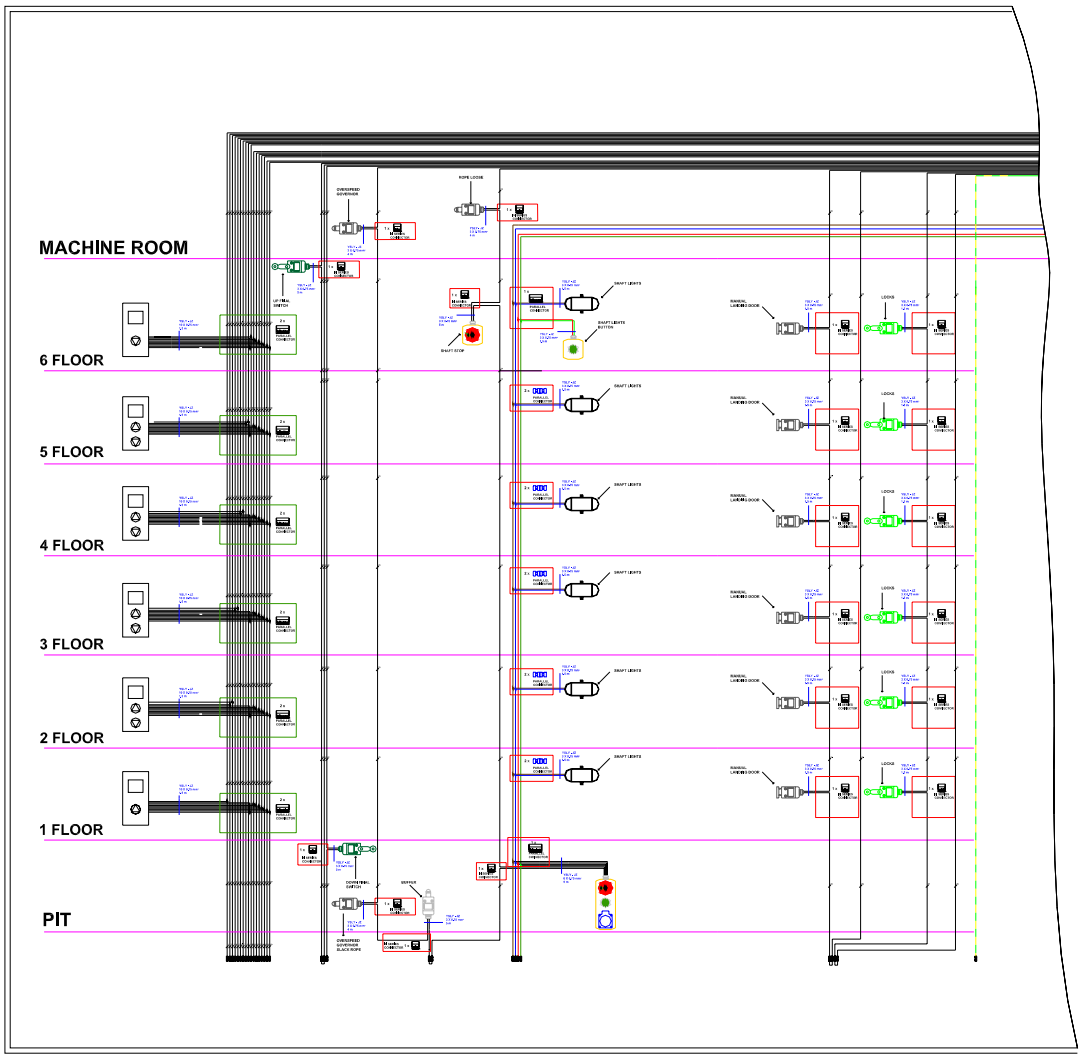


Figure 5-19 Loom connections full collective selective – bus doors

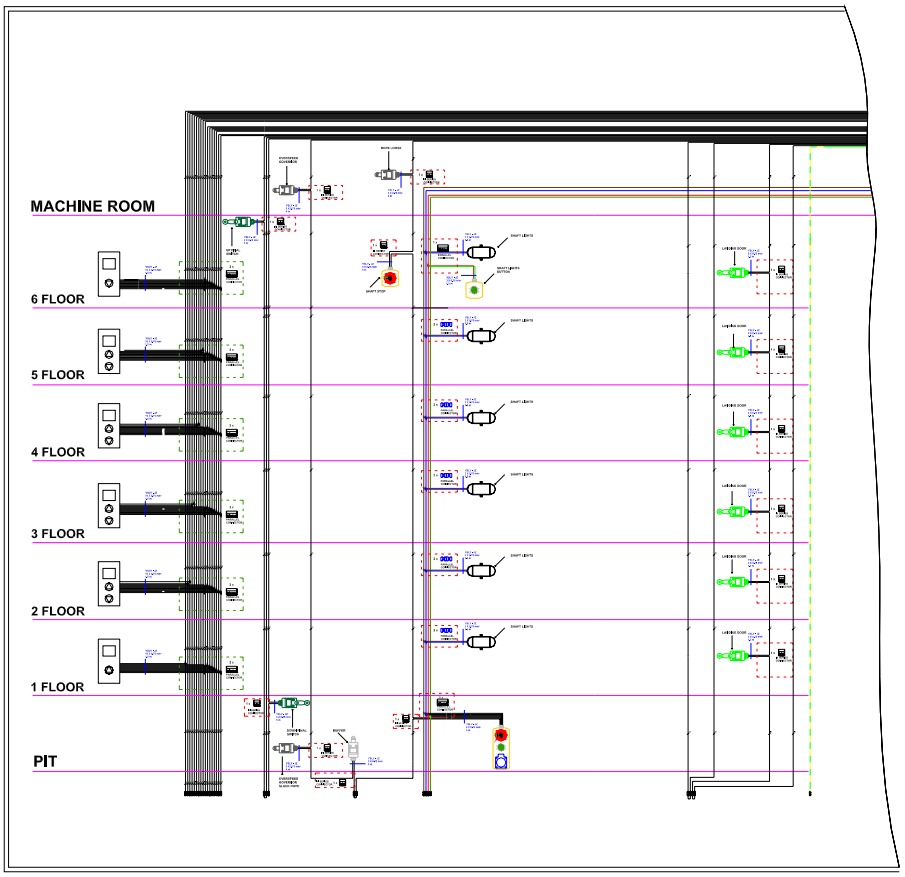


Figure 5-20 Loom connections full collective selective – automatic doors

The following table shows the description of each loom's cable.

TERMINAL	CROSS SECTION	CABLE NUMBER, CABLE COLOR	DESCRIPTION
L1 ή L1U	0.75 mm^2	1 , WHITE	Call 1 ή Call up 1
L2 ή L2D	0.75 mm^2	2, WHITE	Call 2 ή Call Down 2
L3 ή L2U	0.75 mm^2	3, WHITE	Call 3 ή Call up 2
L4 ή L3D	0.75 mm^2	4, WHITE	Call 4 ή Call Down 3
L5 ή L3U	0.75 mm^2	5, WHITE	Call 5 ή Call up 3
L6 ή L4D	0.75 mm^2	6, WHITE	Call 6 ή Call Down 4
L7 ή L4U	0.75 mm^2	7, WHITE	Call 7 ή Call up 4
L8 ή L5D	0.75 mm^2	8, WHITE	Call 8 ή Call Down 5
L5U	0.75 mm^2	9, WHITE	Call up 5
C0M ή L6D	0.75 mm^2	10, WHITE	Common for calls or Call Down 6
105	0.75 mm^2	11, WHITE	Arrow Down
106	0.75 mm^2	12, WHITE	Arrow up
A	0.75 mm^2	13, WHITE	Indication A
B	0.75 mm^2	14, WHITE	Indication B
C	0.75 mm^2	15, WHITE	Indication C
58	0.75 mm^2	16, WHITE	Overload signal (MRL)
+48	0.75 mm^2	17, WHITE	+ 48VDC
+24	0.75 mm^2	18, WHITE	+24VDC
-24	0.75 mm^2	19, WHITE	-24VDC
SL0	0.75 mm^2	20, WHITE	Up final switch start
SL1	0.75 mm^2	21, WHITE	Up final switch return/ Down final switch start
SL2	0.75 mm^2	22, WHITE	Down final switch return
SL3	0.75 mm^2	23, WHITE	Shaft stop start
SL4	0.75 mm^2	24, WHITE	Shaft stop return
SL5	0.75 mm^2	25, WHITE	Manual doors start / Short circuit in case of automatic doors
SL6	0.75 mm^2	26, WHITE	Manual doors return / Short circuit in case of automatic doors
SL7	0.75 mm^2	27, WHITE	Locks start / Landing automatic door
SL8	0.75 mm^2	28, WHITE	Locks return / Landing automatic door
LSL	1.5 mm^2	BROWN	L – Shaft lights
NSL	1.5 mm^2	BLUE	N – Shaft lights
SLB	0.75 mm^2	RED	Lights button start
SLB	0.75 mm^2	GREEN	Lights button return
GND	0.75 mm^2	GREEN - YELLOW	Ground

Table 5-12 Loom description

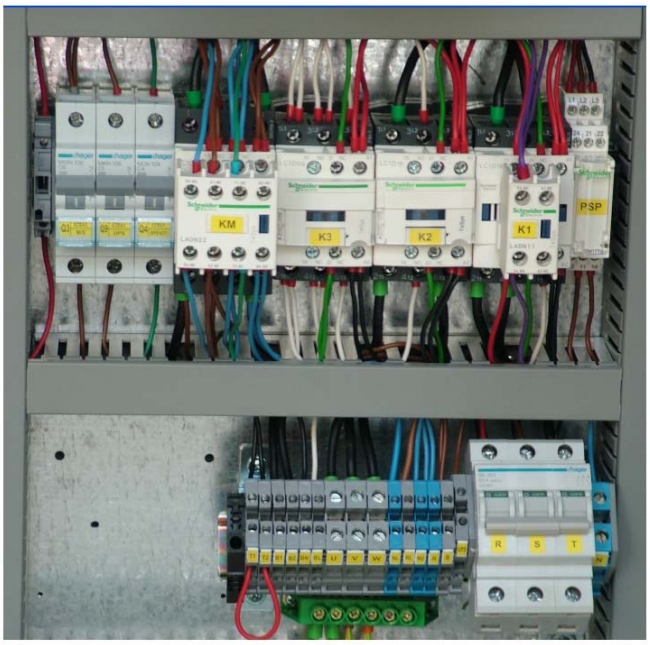
6 TROUBLESHOOTING

Follow the procedure below in order to check out for any faults that have occurred:

1. Look at the controller's display for the errors occurred. Look for help in the troubleshooting tables and correct the problem.
2. Stop (switch off) the control cabinet's operation and restart it after 30secs.
3. If the car cannot move, look in the menu in the "error retrieve" tab and find out the errors that exist.
4. Erase the errors in the "error retrieve" tab inside the menu (Look in the help menu for the programming).
5. There must be at least one error that holds the control cabinet at this stage.
6. If the error retrieve table is empty, then look at the "event retrieve" tab in the menu.

6.1 The lift doesn't move in the Revision state.

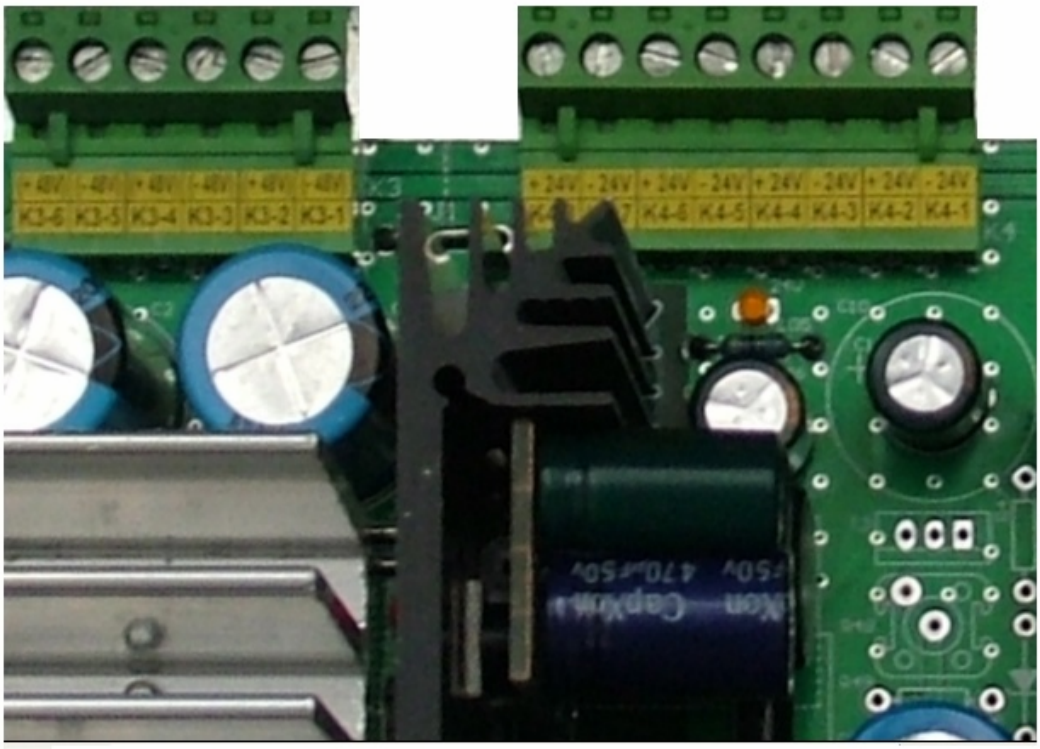
1. Check the voltage at the power supply input terminals R, S, T and the neutral in the terminal block N (Picture 7.1)



Picture 6-1 Electric Power Circuit

2. Check the Phase minder. Both LEDs should be on. (Picture 7.1).
3. Check the fuses (Picture 7.1) and the motor's temperature (for a hydraulic lift).
4. Check the motor's connections (Picture 7.1).

5. Check the voltages on the boards:
   - 48V DC on the LRS electronic board.
   - 24V DC at the led LED +24 on the LRS electronic board.
   - 12 V DC at the LED +12 on the LRS electronic board.
   - 5V DC at the LED +5 on the Phoenix electronic board (Picture7.3 red LED).



Picture 6-2 Power Supply

6. Check the safe brackets of the terminal blocks # 31, 32, 33, 34, 35, 36, 37, 38, (firstly look at the electronic board's LEDs: # 31, 32, 33, 34, 35, 36, 37, 38). Measure also the voltage at the terminal block # 31, 32, 33, 34, 35, 36, 37, 38. The voltage should be between 40VDC and 50 VDC. The LEDs simply shows that voltage exists in each terminal. They can't give a feedback if there is low voltage at the terminals!

Picture 6-3 Safety Circuit

7. Check the pre-terminal switches at the PU and PD terminals (look at the LEDs "65", "66" on the controller's board). Measure also the voltage at the Επίσης PU and PD terminals. The voltage should be between 40VDC and 50 VDC. Look at Picture 7.3.

8. Check the LED's state on the controller's board: If the LEDs of the Rup relays (upgoing) and Rdwn relays (downgoing) are lit when you are trying to give motion to the car, it means that the controller is operating properly and the error is due to a problem in the Power Circuit.

6.2 The Lift does not move downwards while it is in the Revision Stage

1. Check the valve's junctions.

2. Check the connections of the motion relays as well as the connections of the rest relays.

3. Check the limit switch at the bottom (PD terminal).

6.3 The Lift does not move upwards while it is in the Revision Stage

1. Check the valve's junctions.

2. Check the connections of the motion relays as well as the connections of the rest relays.

3. Check the limit switch at the bottom (PU terminal).

6.4 The Lift does not move while it is in the normal operation

1. Check the operation while the lift is in the Revision stage. The car should be able to move in both directions.

2. Check the operation of the car door. The door should be able to close (LED #39). Check what might keep the door open:
   - Terminal 99 Forcing
   - Terminal 59 Photo sensor's signal
   - Terminal 57 Open door Button
   - Check if inputs 99, 59, are properly programmed (see chapter 4, paragraph 4.6 about the controller's programming).

3. Check all parameters that do not allow the control cabinet to become operational:
   - Terminal 53 Overweight
   - Terminal 67 Express
   - Terminal 68 Fire alarm input
   - Check if inputs 53, 67, are properly programmed (see chapter 4, paragraph 4.6 about the controller**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης.**'s programming).

4. Check the motor and the valves.

5. Check the motion relays

6. Observe the error on the controller's display. Get a help from the Table of Errors and remove the error occurred.

6.5 The Lift does not stop at the station when we reset it

1. Check the ferromagnets at the station. (Terminals 61,62,63,64 on the controller and terminals ZA, ZB, SU, SD at the control cabinet's terminal block). Check the voltage at these terminals. It should be between 40VDC and 50VDC.

2. Check the placement of the ferromagnets.

3. Observe the error on the controller's display. Get a help from the Table of Errors and remove the error occurred.

6.6 The Lift stops at the station but it's not operational for any further calls.

1. Check the COMPONENTS CHECK LED (terminal 50 on the controller). The LED SHOULD be lit when the car is at a station.
2. Check the POWER RELAYS CHECK LED (terminal 51 on the controller). The LED SHOULD be lit when the car is at a station..
3. Check the FIRE ALARM input (terminal 68 on the controller). The LED SHOULD NOT be lit when the car is at a station.
4. Check the Re-Leveling electronic board, with the doors open, (Carlo Cavazzi NA12D). The "**SAFETY OK**" LED SHOULD be lit. If it doesn't, either the electronic board or the magnetic switches do not operate properly.
5. Observe the error on the controller's display. Get a help from the Table of Errors and remove the error occurred.

6.7 The Lift counts two stations instead of one

1. Check the operation of the ferromagnetic switches.
2. Check the distance between the ferromagnetic switches and the ferromagnets. It should be 1cm at most.
3. Check the Terminal Limit Switches.
4. Check if there are screws or screw nuts near the ferromagnets (if they are close to them, they might perform as ferromagnets themselves).
5. Observe the error on the controller's display. Get a help from the Table of Errors and remove the error occurred.

6.8 The Lift changes its speed when it reaches a station and stops at the next station.

1. Check the ferromagnetic switches' state and their proper placement.
2. Check the distance between the ferromagnetic switches and the ferromagnets. It should be 1cm at most.
3. Check if there are screws or screw nuts near the ferromagnets (if they are close to them, they might perform as magnets themselves).
4. Observe the error on the controller's display. Get a help from the Table of Errors and remove the error occurred.

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